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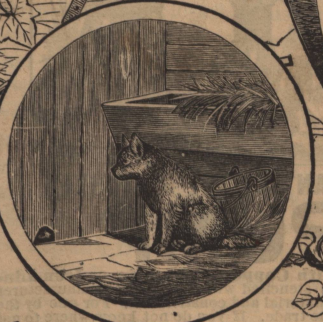


AMERICAN AGRICULTURIST

For the Farm, Garden, and Household.

AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

VOLUME XL.—No. 4. NEW YORK, APRIL, 1881. NEW SERIES—No. 411.

THE EJECTMENT OF A SQUATTER.—*Drawn and Engraved for the American Agriculturist.*

According to Webster, "a Squatter is one who squats or sits close." This term has another meaning, which appears to be altogether peculiar to the United States. A person who settles on wild land, particularly on Government land, without a title, is, in the eyes of the law, and of people in general—a Squatter. That he "sits close" is a well-established fact, often too well known to the Indian, who regards the Squatter as one only to be expelled from the land he has pilfered, by tomahawk and fire-brand, or perchance, and rarely, by the slow hand of justice and law. The continual pushing of the red man from one place to another, is called "the progress of civilization," and too often this gives a dignity to dishonest dealings with the native American. We say that, in the struggle for existence, the fittest will, and ought to survive; but it is entirely forgotten that the general order in the grand scheme of development is for one race to cease to exist by growing into one that is higher. A savage people may cease to exist by becoming civilized. It is not our purpose to eulogize the Indian; he does not deserve it. The white settler, who has had his whole family butchered, and his buildings burned before his eyes, would not believe our words, because it is easier for him to think "the only good Indian is a dead Indian." We may not expect another general Indian war—the copper-colored race is too weak in comparative numbers for this; but our troub'es with them are not at an end. The pledges that have been broken with them, and the faithless promises made, are stains upon our national character. In the hands of an entirely great Nation, the treatment should have been far different, and the results more satisfactory to all.

The artist has given us, in the engraving, a scene which is more in keeping with the highest dealings of man with man. The Squatter has made his home within the domain reserved for the exclusive use of a tribe of Indians, and in which they are living in tranquility, and following the arts of peace. The chief has reported the action of the intruder to the Indian agent, and the result is the legal ejectment of the white man from the land upon which he has squatted. The dishonorable act of usurpation is rewarded with an unconditional ejectment. This is the proper method of adjusting such claims.

ENTERED AT THE POST OFFICE AT NEW YORK, N. Y., AS SECOND CLASS MATTER.

Contents of This Number.

[Articles marked with a star (*) are illustrated; the figure with the star indicates the *number* of illustrations.]

AMERICAN AGRICULTURIST.

NEW YORK, APRIL, 1881.

Suggestions of and for the Season.

The active work of the year has now begun over a large part of the country. The plow is already in thousands of fields, and would be in many more were it not for the sodden soil. Never turn the soil when so wet that it will bake into hard lumps. The soil is too wet to be plowed whenever the mouldboard is smeared, does not keep clean and bright while passing through the furrow. A soil that is late in becoming dry enough for the plow, needs draining. The success of a crop largely depends upon the proper preparation of the seed-beds. The soil must not only be loose, deep, and mellow, but it should contain all the essential elements of plant food, and these in an available form. This requires thorough tillage—plowing, harrowing, etc.—and a good supply of well-rotted manure or its equivalent in some other form. It is folly to expect good crops from a poorly prepared soil, and one lacking the food upon which the plants can feed.

There are two general kinds of farming, with all gradations between—the *extensive* and the *intensive*. The former term is applied to that style of farming in which a large area of soil is expected to produce a medium crop. The farms are large, and the attention given to any single acre is small, both as to tillage and manure. This kind of farming includes much of that at present practised in the western and far western States. It may be the best—at least the most profitable for the present—but in time the soil will become appreciably exhausted, and a new kind of dealing with the soil will be imperative. *Intensive* farming is where a large amount of products is obtained from a small area; the attention to each acre in manure and tillage being comparatively great. This is sometimes styled "high farming," but by this is meant, strictly, the greatest gains for the least outlay, and it may be either extensive or intensive. Both have their place in our agriculture, as each pays in its proper place.

The first grain crop to be put into the ground is spring wheat, and this should be sown so soon as the ground can be made ready. Out of its proper district, marked by climate, it is of no use to grow spring wheat. There are other crops that are sure and give much better returns. Oats should come immediately after spring wheat in time of sowing. Success with oats in our hot climate largely depends upon early sowing. The cooler climate of Canada and New Brunswick is more favorable for oats, where they are plumper and much heavier than those grown in most parts of the United States. By using seed from the northern localities above mentioned we can grow heavier and better oats than when our own seed is sown. The aim should be to harvest 50 to 60 bushels per acre. This can be obtained by having the soil rich and in good condition, and sown with about three bushels of the best seed. Oats are a successful crop in the far Southern States, as they can be sown and make their growth in winter, and the crop kept out of the way of hot weather.

Barley, under favorable conditions, is a reliable and profitable crop, and should not be considered simply as material for brewing. There is no better grain to feed to horses, and when ground with corn it makes a most excellent feed for cattle and growing swine. The two-rowed varieties yield more than the six-rowed, but brings somewhat less in the market. The grain should be sown thickly, 2½ bushels per acre. Barley will succeed in any good, well prepared soil, but it prefers a mellow, clay loam, in good tilth.

Corn planting comes later in the spring, as it requires a warm soil for the grain to germinate, and suffers from late frosts. The time of planting of course varies with the locality, and the soil can be prepared in readiness for the coming of warm, settled weather. Sod turned under, not too deeply, is considered as the best for corn, but excellent crops can be grown upon stubble, provided there is a good supply of manure given to take the place of the vegetable matter of the rotting grass, etc., of the turned sod.

Beets, including mangels, need to be put in very early. There is much difference of opinion as to the advantage of soaking and sprouting the seeds before sowing them. If thus treated they should be carefully watched, and be sown as soon as the minute germ, or sprout, appears on a few of them. Drying with fine gypsum (land plaster) will make the sowing easy. This treatment will insure quick germination, and the young plants will get the start of the weeds. As soon as the plants are up sufficiently for the rows to be seen, run a hand cultivator between them and within an inch or so of the plants. This will leave a strip next to the rows to be treated with hand-hoes. Use a horse-hoe for most of the later cultivation. The manufacture of beet-sugar promises success, provided enough roots are grown in any one locality to make it profitable to erect the necessary buildings and machinery for extracting the sugar. This needs co-operation among the farmers themselves, and between them and the manufacturers; upon this the success of beet sugar making in our country depends.

Farmers have so thoroughly learned how to manage the potato-beetle that it is not necessary to plant early with a view to escape its ravages. But it is well to plant early, especially if the crop is to be sold, and there is a ready market. The earliest pays the best, and the one who is first gets the cream of the market. The Early Rose still holds its rank among the most desirable varieties.

The most essential crop upon a farm is grass. The better the system of farming the more important will grass become, both in its own value and the good effect it has upon the soil and the crops that are to follow it. Our farmers have not given proper attention to the study of the different grasses and the soils best fitted for each. Meadows and pastures, to do their best, often need a little stimulating fertilizer. Two hundred pounds of Guano, or of Nitrate of Soda, often more than double the crop, and returns a large profit on the cost. Improved grass lands mean more milk, cheese, butter, and beef, and a farm with a rich, never-failing permanent pasture is one where live stock will thrive, and the owner of it is very sure to be prosperous. Look well to the grass land.

Cows with calf should receive special care both as to feed and handling. Good hay is the best feed; over-feeding must be avoided, as with high-bred cows, especially, there is danger of milk fever or garget. Light feed-

ing, before calving is the best preventive of this, followed by a mild laxative after the calf is dropped. The udder should be watched closely, and upon the first appearance of hardness and heat, bathe with cold water to reduce the inflammation. It is well to let the calf suck the cow if there is any trouble with the udder. Save the heifers from the best cows, and thus constantly improve the stock. A poor cow is an unprofitable animal, and should be fattened and "turned off," leaving no progeny in the herd. Calves, with care in feeding, may be raised on skim milk by replacing the cream with a little oil-cake meal.

As the days grow warmer the ticks will increase upon the sheep, and become more troublesome. A strong decoction of Tobacco in water, used as a dip, or poured along the back, will destroy them. There are several sheep dips advertised in our columns; these are effective and safe, and ready for use. As the lambs increase in size the dams suffer, and the lambs must either be fed some meal daily, or the ewes must be given an abundance of rich food. Lambs can begin to eat at four or five weeks, and thus relieve the ewes.

Pigs need a clean place, and breeding sows should be by themselves with an abundance of cut straw or chaff for litter.

Horses that have had good care will come out in the spring in good trim for the season's work. As the coat begins to loosen the skin is irritated; an ounce of equal parts each of Sulphur and Cream of Tartar, given with the food for a few days will correct this. Good grooming with a soft brush should not be neglected. Ground feed, mixed with cut hay, is an excellent food in the spring for working horses. Three quarts of equal parts of corn and rye (or oats), mixed with a pailful of moist cut hay, is enough for a meal. An occasional feed of cut beets or potatoes is useful. With many experienced horse-men an occasional feed of half a peck of potatoes is regarded as a remedy for worms in horses. However this may be, they improve the general condition of the animal in a most positive manner. The main point is, to keep the horses in good health and strength, for upon them devolves a great part of the spring work. As foaling time approaches, brood mares should be turned loose in a box stall and receive the most gentle treatment, as the temper and disposition of the colt is thought to depend much upon this.

The poultry will now get much of their food by foraging; a feed of grain in the morning and at night will be sufficient to keep them in a good laying condition. Sitting hens need good, clean and quiet nests. Water and food should be near at hand. Young fowls need to be fed at frequent intervals, with caution to not over-feed.

There is a good deal of work comprehended in the general term of "clearing up" that must be done. Any accumulation of rubbish, ashes, etc., made during the winter should be taken away, for sake of both looks and health. Rake the yards and make the surroundings of house and out-buildings assume a tidy and pleasing appearance. The rainy days—and there are a good many in spring—may be employed to advantage in cleaning and repairing tools and putting all the farm machines in good working order. Many of the labor-saving devices mentioned from time to time in our columns, can be made in the workshop while it is storming out-of-doors. The farmer who knows how to avail himself of all the odd hours and half hours possesses one of the leading essentials of success.

Orchard and Garden Work for April.

By the time this number reaches its readers spring work will have begun. It is hoped that all having orchard and garden work to do will have provided for it as suggested in our Notes for the previous two months. After such severe winters as the last, spring work comes in a mass, and it must be done quickly, or it will be very soon too late.

Orchard and Nursery.

When the trees that were ordered arrive, they should be *heeled-in*—a nursery term for a temporary planting to keep the roots from injury until the trees can be planted out. Open a trench and place the trees in it at an angle of 45° or less, so that the tops may shade one another, and fill in with fine earth closely around the roots. In this and all other handling of the trees, look out that the labels do not get mixed or lost. In planting put all of the same variety as near together as possible, for convenience in harvesting. After the orchard is planted make a map showing every tree, its position and variety. This is but little work and it preserves the record of the trees. Observe what is said in last month's Notes, about cutting back the tops of trees at planting. The nurseryman knows that the majority of buyers judge of a tree by the amount of top it has, and that those who look at the roots are few, hence as a rule the tops must be cut back more or less.

The planting of a tree and the setting of a post are done for very different purposes, and should not be done alike. If thrifty trees are set in a hole cut in a wet meadow and the sods put back, except for a foot or so about the tree, as we have seen done, such trees can not thrive, and many will not survive the first season. Such orchard planting is a waste of money, and if no other land can be used, wait until the land can be drained and made fit for planting. Having the land in proper condition for producing a good crop of wheat or corn, and having laid out the orchard (see last month), marking the place for each tree with a small stake, open a broad, shallow hole, and, with the tree in the center, spread the roots in all directions; sprinkle in the soil upon, and work it in among, the roots, leaving no masses of roots or large hollow spaces about them. Set each tree carefully, as it is a matter of a lifetime, and on it depends largely the success or failure of the orchard. While the trees are small they need special care. The ground should be well tilled and thoroughly manured. Hoed crops may be grown between the rows, but the very act of planting an orchard indicates that the land is devoted to the production of fruit. If another crop interferes in any way with the best growth of the trees, that crop is out of place. It is sometimes said "the orchard has run out," but it is only another way for saying that the trees are crying for manure. The earlier this manure is applied the better; it ought to have been given last month, but it is better now than not at all. Good, well rotted stable manure is the best, but should there be an abundance of vegetable matter in the soil, a dressing of lime will often produce gratifying results. Wood ashes or bones, will not come amiss upon an old "worn-out" orchard. Pruning may be done until the buds begin to start, after which this work should be deferred until late midsummer. Grafting of old trees to convert poor kinds into good ones should be done just as the buds swell. This by no means difficult operation was described in full in the *American Agriculturist* for April 1877 and February 1880. In most localities it is now too late to prevent mischief from the canker-worm.

The Fruit Garden.

If every family, especially every farmer's family, has not an abundance of small fruits it is not the fault of the *American Agriculturist*, for we have pleaded for them year after year. It is better to have them in a plot by themselves, with a fence to keep out intruders, but this is not absolutely necessary. If it must be, grow them in the vegetable garden rather than not have them. Do not put it off. Whenever the start is made it must be a whole year before any fruit can be gathered. Begin now, and next year the family will rejoice. The earlier the planting is done, the better will be the crop.

As soon as the leaves of the currant and gooseberry are fairly expanded, the "worm" may be looked for. The eggs are laid upon the under side of the lower leaves, and if these are removed and destroyed much trouble is averted. If any ragged leaves are seen the worms are at work. Apply powdered white hellebore stirred in water, a tablespoonful to the pailful. Grapes may still be set and there is always a place for a grape vine upon the smallest place. With young vines only one strong shoot should be allowed to grow; rub off other buds as they start. If tender kinds of raspberries were covered last fall they should be taken up at once and the canes tied to stakes or trellises.

Kitchen and Market Garden.

The plants of cabbage, cauliflower, and lettuce from the cold frames are to be set out so soon as the soil is ready, and the frames used to push forward a crop of lettuce, to be followed by cucumbers—thus making the most out of the investment in glass. As a general thing, the sashes may be entirely removed from the frames containing wintered plants. Seedling plants, either in hot-beds or window boxes must not become slender and weak; prevent it by early transplanting and giving more room. Window boxes may be set out of doors in a sheltered place during mild days, but taken in before the air gets chilly, unless it is warm and no danger of a sudden cold turn.

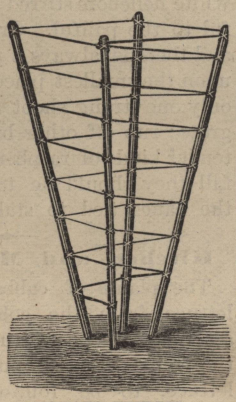
As the heat of the sun increases the hot-beds will need careful ventilating. As far as may be maintain a uniform temperature for the plants, avoiding both chilling and burning. The distinctions so often pointed out by us in our Notes, of *Hardy* and *Tender* vegetables, should be kept in mind. Hardy vegetables should be sown so soon as the soil is dry enough to work and heavy frosts are over. Tender vegetables should wait until the soil is *warm* as well as dry. This is, in the familiar expression, about "corn-planting time." That leading crop being one of the tender class, it makes a safe guide for the others. In the Northern States generally, it is rare that any seeds can be sown in the open ground before this month. Those to go in first are . Beets, Cabbage, Cauliflower, Celery, Cress, Leek, Lettuce, Onions, Parsley, Parsnip, Peas, Potatoes, Radish, Spinach, early

Turnip. The leading tender vegetables are: Beans, Cucumber, Okra, Pumpkin, Squash, Sweet Corn, Tomato, Watermelon, and Muskmelon, to be sown at corn-planting time.

In even a moderate sized garden a seed sower and hand cultivator save time and do the work better than by hand. There is a variety of these garden implements to choose from, and it is impossible for us to say which is the best. There are a number of home-made aids that should be provided before they are needed, such as markers, dibbles, etc. A garden line and reel is a great convenience in laying out rows, beds, for sowing in straight lines, etc. Two hard-wood sticks about two feet long, pointed at one end, with the twine wound upon one makes a cheap and satisfactory substitute for a reel—much better than the poorly made iron reel.

Those who wish to give their potatoes an early start can do so by placing the "seed" in boxes of earth in a warm room. They require to be handled with much care at planting time, not to break the sprouts. Rake off the coarse litter from the asparagus bed and fork in the fine manure, taking care to not injure the crowns of the plants.

Tomatoes are among the most tender vegetables, the slightest frost killing them, and a cool night gives them a chill from which they are long in recovering. In a garden the plants can be protected by a screen of some kind if a frosty or unusually cool night is apprehended. Any light fabric that may be at hand, or even newspapers will answer; stakes may be put around or near the plants to prevent the screen from resting upon them. If the tomatoes are provided with a trellis, the arrangement of the screen is much easier. Those who have once grown tomatoes upon a support or trellis, will never go back to the slip-shod manner of field culture. Not only are neatness and convenience secured, but the fruit is really enough finer to pay for all the trouble of making the trellis. The number and varieties of tomato trellises given in former volumes, is very large, but we give one more which is different from any other, an account and drawing of which comes from Mr. D. M. Sharpnack, Ritchie Co., West Va. He rips strips from 1¼ or 1½ inch boards, four feet long, and sharpens on one end. Three or four of these are driven around a plant 10 inches apart, and flaring outward to be 2½ or 3 feet apart at the top. Take a ball of common wool twine, make the end fast to a stake at 8 inches from the ground; wind the twine around the trellis, taking a turn around each stake, in a spiral manner, with about 6 inches between the turns. Mr. S. finds that twine will not injure the plant or the fruit like a square corner, and the vines may be trained more readily. By fall the strings will be useless, and the stakes may be pulled up, tied in bundles, and laid away for another year.



TOMATO TRELLIS.

Three heaps are needed, if not *in* every garden, adjacent to it. One heap should be for all vegetable and animal matter that may be converted into manure; it is perhaps better to have for this a pit, instead of a heap, as unless it can be occasionally watered, it will dry out too much in the hot months. To this heap or pit should go all the weeds that will not ripen seeds, all refuse vegetables, bits of sods, coarse lumps of manure raked off of the surface, with cats and dogs that may have died suddenly, and other animal matter. If watering is needed to induce fermentation, that from the family washing is preferable. By adding all that can be converted into manure, this heap will, during the season, accumulate a valuable compost. The second heap is the "Burn Heap," and must be away from all buildings. This should receive whatever will burn; old stakes and labels; trimmings of trees and shrubs; old pea-brush and the like. If any weeds have been allowed to become so old that they will ripen seeds, they should go here rather than to the compost heap. When this heap is large enough it should be burned in a dry time, and the ashes carefully saved to use upon the garden. The third is the "Rubbish Heap," for that which will neither decay nor burn. All stones raked from the garden, broken crockery, old tin and worthless ironware, and all other unsightly rubbish should go here. The contents of this heap may be used from time to time to fill in low places in road making or elsewhere. It will often be best if circumstances allow to have a pit or dry well in place of this heap. A pit may be dug in a suitable place, and provided with a cover for safety. When filled within a few feet of the top, the contents may be pounded down solid, and earth used to complete the filling, and a new pit made. This provision for all kinds of rubbish and the prompt depositing of each in its proper place will make it easy to keep the garden neat, and utilize much that would be wasted were everything, as is often the case, put upon one heap.

It is often desirable in the garden to measure a certain distance, as between rows and between plants. It will take but a short time to make upon the hoe and rake-handles marks for feet and half-feet. These may be put on with black paint, or cut with a knife or chisel; they should not be where they will interfere with the comfort of handling.

Flower Garden and Lawn.

If any seeding of grass or turfing is to be done, attend to it early, that the grass may become well established before hot weather comes. In turfing, select the sods with care, and endeavor to introduce no weeds. For seeding, on light soil, Red-top is best, and for heavy clay soils use Kentucky Blue-grass. Either of these, with a quart of White Clover seed to the bushel, is likely to give as good a lawn in our climate, as when a mixture of a dozen kinds is sown. Select only the best seed, as there is a great difference in quality in grass seeds. A good top-dressing of ashes, plaster, guano, or fine bone, should be given the lawn each spring. In the planting of trees and shrubs, always preserve the balance between the tops and roots, as mentioned under Orchard Notes. While the lawn is put in proper shape, the appearance and comfort of the exterior of the house should not be overlooked. Most houses have a piazza or veranda of some kind, and this should be furnished with an abundance of climbing vines. The following are among the best for this purpose: Akebia, Virginia Creeper, Wistarias, Dutchman's Pipe, Everblooming Honeysuckle, and climbing Roses. For lower climbers the large-flowered kinds of Clematis are desirable. With these properly arranged, the veranda of a house may be made attractive and afford a comfortable shade.

Greenhouse and Window Plants.

As the days get warmer, the attacks of insect pests will be more vigorous, and frequent fumigation, with more thorough syringings, will be necessary. A free admission of air will be needed at all times when the temperature outside will permit. Shade will soon be required, and is best provided by using ordinary lime wash upon the glass. To make a gradual shade this is flirted from the brush in drops, and increase the spattering as more shade is required. For windows this method will not answer. A screen of common muslin is most convenient and satisfactory. It is easy to keep the greenhouse attractive all through the summer, when a large share of the plants have been moved outside. Balsams grown in pots are very showy, and a group of Gesnerias is a pleasant object. A number of other rapid growing annuals, and other plants, may help to fill up the otherwise empty shelves with attractive plants. Propagation of all kinds of stock for bedding plants should be going on rapidly.

Science Applied to Farming—LXVIII.

More About the Field Experiments of Fertilizers.

Of the experiments, the continuation of which, during the fourth season, 1880, I am speaking, some 350 have come to my personal knowledge. How many others may have been made, I have no means of knowing. I have received some 225 reports on the blanks sent out with the fertilizers.* They come from nearly all the States east, and from some west of the Mississippi, and from several of the British Provinces.

The outcome of so much systematic work must have great value. I wish here to speak of one phase of its utility, the information the experiments give as to what commercial fertilizers farmers may advantageously purchase for use, as illustrated especially by the "general" experiments referred to last month.

Experiments for Testing Soils.

The principle upon which these experiments is based is briefly this: The chief office of fertilizers is to supply the plant-food that our crops need and soils fail to furnish. It is not good economy to pay high prices for materials which the soil may be made to yield in abundance, or which may be supplied by the carefully husbanded manures of the farm, but it is good economy to supply the lacking ones in the cheapest way. The most important ingredients of our common commercial fertilizers are *Phosphoric Acid*, *Nitrogen*, and *Potash*, because of both their scarcity in the soil and their high cost. It is in furnishing these that Guano, Phosphates, Bone Manures, Potash Salts, and most other

* The blanks for reporting experiments were sheets, about 12 by 19 inches, having spaces for noting, on one side: (1) Description of soil; situation, kind, texture, dry or wet, depth of surface soil, character of subsoil, etc., etc.—(2) Previous treatment, manuring, and yield.—(3) Weather during experiment.—(4) Fertilizers and how applied.—(5) Method of sowing, planting, tillage, etc.—(6) Other details and remarks. The other side was devoted to details of size of plots, dates of planting and harvesting, amounts, quality, and value of produce in grain, roots, tubers, stalks, etc., by pounds and bushels; calculated profit and loss, etc. They were sent out with the request that any who cared to take the needed trouble should fill them out and mail to me.

commercial fertilizers, are chiefly useful. Experiments were suggested in which the three ingredients named were to be used, each by itself; two by two, and all three together. Samples of the results are given in the table herewith presented.

Soils Especially Benefited by Phosphoric Acid.

In Mr. Bartholemew's corn experiment, No. 10, every plot to which Phosphoric Acid was applied, brought a good crop, and every one without it failed. The Nitrogen and Potash both increased the yield, but reckoning a bushel of corn with its stalks at 80 cents, neither increased it enough to pay the cost. This experiment was a repetition of the same experiment of 1879, with the same fertilizers on the same plots. In 1878 a similar one was made on another part of the same field. In each of the three experiments, as likewise in other trials, the crop has risen and fallen with the Phosphoric Acid, and paid very little heed to anything else. Mr. Bartholemew's experiments, which have now continued for four years, covered nearly 100 plots, and are among the most instructive ever made in this country, the testimony in favor of Superphosphate, and against the other materials for corn is unanimous, but for potatoes, the complete fertilizer has proved profitable. And for corn, Superphosphate and farm manure together have brought the best results. In Mr. Clendon's experiment, No. 1, and Mr. Wolcott's, No. 8, the results with Phosphoric Acid are equally striking. Mr. Clendon's experiment is of especial interest as showing that Phosphoric Acid is often more profitable in its insoluble and cheaper forms, (see foot note to table) than in Superphosphate. There are, however, many

Soils which Respond well to Potash Salts.

This is the case in Mr. Hicks' experiment with corn, No. 17, and in nearly all the trials with potatoes. I do not find so many striking instances of great success with potash salts, and failure without them in the experiments of the season, as in previous years.

The Complete Chemical Fertilizer.

No. G. has brought by far the best results. It was generally the most profitable of all with potatoes, and often so with corn and other crops. This mixture has not only brought larger yields than the farm manures, but has also proved more certain, in favorable seasons and in cold, wet, and drouth.

The Most Profitable Fertilizer

of course depends upon the circumstances in each case. The material which brings the greatest gain in one case may bring the greatest loss in another. With Superphosphate numerous experimenters compute their gain at from $20 to $40 per acre, while others find large loss. With each of the other materials and mixtures the same is true to a greater or less degree. At the same time, cases in which none of the fertilizers were particularly useful are common. Indeed, these experiments illustrate very forcibly a fact which few farmers appreciate, namely: that there are a great many soils which will not pay for the use of artificial fertilizers, at least until they are better tilled, irrigated, drained, or otherwise improved. Taken all together, the experiments emphasize more and more strongly, year after year, the conclusions that:

1. Soils vary widely in their capacities for supplying crops with food, and consequently in their demand for fertilizers.

2. Some soils will give good returns for manuring; others, without previous amendment, by draining, irrigation, tillage, or use of lime, marl, etc., will not.

3. Farmers cannot afford to use commercial fertilizers at random, and it is time they understood the reason why.

4. The right materials in the right places, bring large profits. Artificial fertilizers rightly used, must prove among the most potent means for the restoration of our agriculture.

5. The only way to find what a soil wants, is to study it by careful observation and experiments.

6. Success in farming, as in other business, requires the use of brains.

Among the thousands of farmers who read the *American Agriculturist*, there are very many thoughtful, earnest, progressive men, and many who are interested in such things as I have been writing about. To these I should like to say two things:

1. I most cordially second the proposal of the *American Agriculturist* concerning experiments the coming season, and hope that as many as can will undertake them.

2. What individual, having the right spirit, may do in gathering up the facts that, taken together, make up the sum of our knowledge, the experiments, especially those described last month, clearly show. Such co-operative work, rightly done, will help much to throw light on the dark problems of fertilization. To any who may be ready to join such work, I would recommend the Special Nitrogen Experiments described last month. With any such I shall be glad to correspond.

W. O. ATWATER,

Wesleyan University, Middletown, Conn.

Samples of Field Experiments with Fertilizers, 1880.

Exp't No.	*Name.*	*Soil.*	*Previous Treatment.*	*Weather.*
1	GEO. CLENDON, JR., Buckner's Sta., Va.	Clayey loam, comp't subs'l.	Worn out, abandoned land.	Dry, favorable.
4.	PROF. J R. PAGE, University of Va.	Sandy, clay subsoil	Wheat	Cold, dry. unfavorable.
8.	R. P. WALCOTT, Holland Patent, N. Y.	Sandy, sandy subsoil	Old pasture	Warm, moist, very fav.
9.	J. W. PIERCE, West Milford, Mass	Clay loam, clay subsoil	Same experiment in 1879.	Warm, dry, very fav'ble
10	W. I BARTHOLEMEW, Putnam, Conn.	Clay, compact subsoil	" " "	Dry, favorable.
17	EDWARD HICKS, Old Westbury, L. I.	Sandy loam, loam subsoil	Pasture	Dry, very favorable.
19	WILBUR ELIASON, Chestertown, Md.	Gravelly loam, cl. subsoil	Wheat	Warm, dry, favorable.
20 and 26.	M. H. DEAN, Falls Village, Conn.	Cl. loam, gravelly subsoil	Old meadow	Dry, favorable.
21.	J. M. MANNING, Taunton, Mass.	Sandy loam, sandy subsoil.	Old meadow	Variable.
27.	A. P. ARNOLD, Vineland, N. J.	Sandy loam, gravelly clay.	Sweet potatoes	Dry favorable.
28.	F. C. GUNDY, Lewisburg, Pa.	Gravelly.	Corn	Warm, dry, very unfav.
30.	W. A. BENEDICT, Bridgefield, Conn.	Clayey loam, clay subsoil.	Onions	Warm, dry, unfav'ble.

NUMBER OF BAG	0	A	B	C	D	E	F	G	H	00
KINDS AND AMOUNTS OF FERTILIZING MATERIALS APPLIED TO THE ACRE.	No Manure.	Nitrate of Soda 200 lbs.	Dissolved Bone Black, 300 lbs.	Muriate of Potash, 200 lbs.	Nitrate of Soda, 150 lbs. Dissolved Bone Black, 300 lbs.	Nitrate of Soda, 150 lbs. Muriate of Potash, 200 lbs.	Dis. Bone Black, 300 lbs. Muriate of Potash, 200 lbs.	Nitrate of Soda, 150 lbs. Dis. Bone Black, 300 lbs. Muriate of Potash, 300 lbs.	Plaster, 200 lbs.	Farm Manure.	No Manure.
VALUABLE INGREDIENTS APPLIED PER ACRE.		Nitrogen 32 lbs.	Phos. Acid, 48 lbs.	Potash, 100 lbs.	Nitrogen, 24 lbs. Phos. Acid, 48 lbs.	Nitrogen, 24 lbs. Potash 100 lbs.	Phos. Acid 48 lbs. Potash 100 lbs.	Nitrogen, 24 lbs. Phos. Acid, 48 lbs. Potash, 100 lbs.	Sulphuric Acid and Lime	Complete Fertilizer. Variable.	
COST PER ACRE†		$7.50	$5.25	$4.50	$10.88	$10.13	$9.75	$15.38	$0.80	var'ble	
YIELD PER ACRE	bu.	bu.	bu.	bu.	bu.	bu.	bu.	bu.	bu.	bu.	bu.
CORN. Experiment No. 1	10.1	10.3	23.0	12.1	27.4	....	23.1	31.0	....	22.9	9.7
CORN. Experiment No. 4	16.5	13.8	33.8	22.2	36.7	24.8	35.6	33.8	21.0	26.8	15.9
CORN. Experiment No. 8	26.3	18.7	43.8	21.9	45.3	14.4	46.3	48.0	23.8	....	19.4
CORN. Experiment No. 9	23.4	27.1	34.0	25.4	38.3	....	42.0	44.8	26.7	....	35.7
CORN. Experiment No. 10	22.2	20.1	43.2	24.7	45.1	24.0	52.8	50.0	....	....	37.8
CORN. Experiment No. 17	46.8	50.3	60.4	67.8	60.3	72.0	71.0	70.0	....	....	61.8
CORN. Experiment No. 19	56.5	62.8	68.7	64.2	76.4	63.0	68.6	70.9	58.4	....	54.2
CORN. Experiment No. 20	61.7	6.25	7.23	64.3	67.0	66.0	72.5	76.0	68.0	....	67.0
Average of 20 *Experiments in* 1880	32.1	35.2	43.2	37.1	46.8	40.3	47.5	48.1	39.8	46.6	....
Average of 73 *Experiments, in* 1878-80	26.6	31.7	37.4	34.3	41.0	38.0	43.2	47.8	32.0	46.5	....
POTATOES. Experiment No. 21	29.0	28.0	68.0	29.0	77.0	28.0	104.0	127.0	40.0	101.0	35.0
POTATOES. Experiment No. 26	152.0	164.0	170.0	155.0	166.0	168.0	244.0	221.0	218.0	....	166.0
Average of 22 *Experiments*, 1878-1880	79.0	89.0	105.0	104.0	117.0	96.0	136.0	156.0	90.0	127.0	....
SWEET POTATOES.—Experiments No. 27	133.0	158.0	152.0	188.0	172.0	200.0	208.0	222.0	....	204.0	....
Average of 5 *Experiments in* 1878 *and* 1880	75.0	134.0	102.0	164.0	125.0	195.0	165.0	214.0	60.0	273.0	....
OATS.—Experiment No. 28	20.9	20.8	22.5	23.4	23.2	25.6	27.2	27.8	21.8	....	....
Average of 3 *Experiments, in* 1878-1880	19.9	20.7	33.6	19.7	46.3	36.7	29.1	37.2	24.1	....	....
ONIONS.—Experiment No. 30	290.0	530.0	510.0	680.0	620.0	500.0	650.0	610.0	400.0	390.0	....

* In Experiments 10 and 17, 150 lbs.—See same in table in last month's article. † At market prices, plus $5.00 per ton for freight.

[EXPLANATION OF TABLE.—The above table will repay careful study. Thus, for example, in Experiment 10, the 150 lbs. per acre of Nitrate of Soda, costing $5.62½, brought no increase of corn; 300 lbs. of dissolved Bone-black (charred bones, superphosphated) added 21 bushels at a cost of $5.25. In this experiment and in No. 8, every plot, B, D, F, and G with Superphosphate gave good increase, while every one without it, A, C, E, and H, failed to do so. In No. 26, the mixture of 300 lbs. Superphosphate and 200 lbs. of Muriate of Potash, F, costing $9.75 increased the yield of potatoes by 85 bushels, while with the same materials plus 150 lbs. of Nitrate of Soda, making the "complete" chemical fertilizer, G, the yield was less. This last is very likely due to irregularity in the soil. In the average of 22 experiments with potatoes the yield with G, is 20 bushels larger than with F. In Nos. 4 and 20, none of the mixtures were profitable; in No. 4, because of severe drouth; in No. 20, very probably because the soil itself was rich, *i. e.*, had a good store of available plant food. Taking the average of the experiments for 1878–1880, the "complete" chemical fertilizer, G, brought the largest crops, excelling even the farm manures. The mixture of Superphosphate and Potash Salts, F, brought nearly as large yields of corn and about the same of potatoes as the farm manures. As to average profit, among the chemical fertilizers, the complete fertilizer paid best for potatoes, and the mixture of Superphosphate and Potash Salts for corn. In Experiment, No. 1, it is worthy of especial note that another plot on which Phosphoric Acid was supplied in finely pulverized S. C. Rock Phosphate, at the rate of 400 lbs. per acre, brought 29.1 bushels corn, against 23 bushels with Superphosphate, the same with farm manure, and 31 bushels with the complete fertilizer.

A Windlass for Drawing Water.

Mr. "W. A.," Gardener Co., Mo., sends sketches and a description of a device for drawing water, which he finds is both cheap and convenient. He writes: "It is so far superior to the old-fashioned windlass, or even to most pumps, that I am astonished that it is not more in use. I came upon the idea by accident. I was using an old fashioned windlass in a well 52 feet deep, when the bucket dropped and I failed to recover it. A new bucket was bought, and when afterwards the well was cleaned I had two buckets. The windlass roller was large, and in the center I cut a groove about an inch deep, encircling the roller, as shown in figure 1. I then placed the extra bucket on the end of the chain, which was before fastened to the windlass, putting the chain in the groove. By turning the crank one bucket goes up while the other goes down, making an easy and rapid method of drawing water. A few headless nails are driven in the groove which catch in the links and keep the chain from slipping. With this method there is no handling of a wet or frozen chain, as with the two-bucket and pulley process, besides being very much easier."—A small roller with a chain-wheel in the center, as shown in figure 2, may be used in the same way.

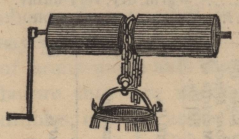


Fig. 1.—THE ROLLER.

Fig. 2.—WELL CURB, WITH CHAIN WHEEL.

Grape Stakes and Trellis Posts.—Several have asked how trellis-posts and stakes for grape vines can be prevented from decaying in the ground. Of course the better plan is to use wood of a durable kind. If Locust posts can not be had, short pieces of this wood to go in the ground, and project high enough above the surface to allow uprights of more perishable wood to be spiked to them, will answer. Chestnut in some soils lasts well, and the enduring quality of Catalpa will recommend that for such uses. Among the methods of preserving perishable wood, our experience extends only to two, *namely:* thoroughly charring the lower ends, and to soaking them in a strong solution of Blue Vitriol (Sulphate of Copperas). A pound of this in two quarts of water makes a saturated solution or nearly so. The ends of the posts are soaked in this until it has well penetrated. For small pine stakes we once followed a German method: After they had been well soaked in the Blue Vitriol solution and dried, they were placed in Lime Water over night, and when again dried were ready for use. The stakes thus treated lasted well for two seasons, when they were no longer needed.

A Good Corn Ground.

Indian Corn is the great cereal crop of the northern United States, and it is important to know what are the conditions most favorable for its growth. The extensive experiments made under the direction of Professor Atwater teach us, already, some lessons as to the best conditions for the growth of the corn plant. It is evident that the plant must have an abundance of food, and that this food must be in the most acceptable form. We do not know to a certainty how much of any one element of food is the proper amount, and as yet we fail to discover the best forms for them all to be presented to the plant. But we do know some general principles, and should apply them as far as possible to the culture of the crop. It is known that corn has a semi-tropical nature—it loves the warm months—and therefore its season of growth must be limited. "About corn-planting time" is when settled weather comes, and the soil is beginning to warm up with the heat of long days and a high sun. With the short season before it the grain should be in the soil just as soon as it will grow vigorously. The good corn ground is then one that is warm early. This will depend somewhat upon the season, and very largely upon location and the soil. Passing season and location as beyond control, the soil should be made as warm as it can be by thorough underdraining, and the best of tillage. While it is very important to have the soil deep, warm, moist, and mellow, that is not all—it must be *rich*. The soil is not simply the *place* where the grains of corn are planted that they may grow—a mere inactive seed-bed—but the *substance* from which the young corn plants must derive a large part of their food, from the time they germinate until the corn is ripe in the ear. If this food is present and in an available form, there is good reason to hope for a fine crop. Such a soil is "a good corn ground." This definition does not include any previous crop; it does not say a turned sod is *the* ground for corn. In many systems of crop rotation it may follow best after grass, and do better there than any of the other crops in the rotation, but thousands of experiments show that corn follows corn with success, provided you have the essential elements of food present and the condition right for their being used at once.

Birds and Seeds.—The English gardeners use Red Lead upon those seeds which birds are fond of making "come up" before their time. It is said to even diminish the appetite of the pigeon for early peas. The seeds are placed in a vessel and a little water put with them; so little that when well stirred, the seeds will be merely dampened—not wet—on their surface. When the seeds are merely moistened, a little dry Red Lead, about a teaspoonful to a pint of seed, is added; the seeds are again thoroughly stirred, so that each one will be evenly and thinly coated with the paint. Spread to dry and then sow.

Conveniences in the Cow Barn.

Mr. P. W. Casler, Herkimer Co., N. Y., writes: "I inclose a rude sketch to illustrate my method of feeding grain to the stock in winter. We keep a dairy of 60 cows; they are stabled in a basement, 100 feet long, facing away from each other, so that there are 30 cows on each side, with an alley-way in front to feed from. In these alleys I have made large feed-bins as shown in figure 1." These bins are each provided with a slide at the bottom of the front, which, when raised, allows the feed to be shovelled into the feed-barrow, shown in figure 2. The barrow is wheeled along in front of the cows, and each cow given from 4 to 6 quarts of a mixture of equal parts of ground oats and bran. The barrow, while it holds more than a basket, is preferable on account of being tight, and the feed will not sift through. It can be made in a very short time from an old barrow-wheel, a few boards, and two strips for handles.

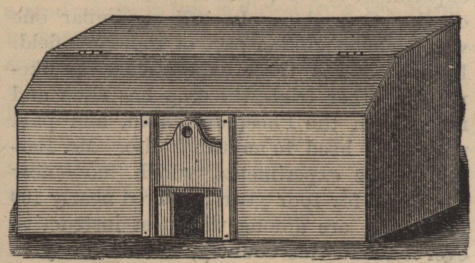


Fig. 1.—A LARGE FEED BIN.

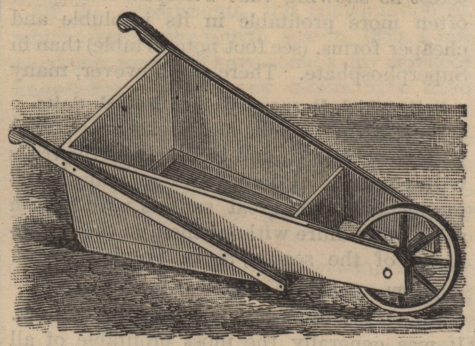


Fig. 2.—A FEED BARROW.

Tagging Sheep.—This is an operation that ought not to be left undone, or even put off until the wool gets very long and dirty. Sheep should be tagged before they are turned out to grass, and if done thoroughly, there will be no more trouble with them in this respect. A pair of old shears should be used, but they will need to be ground sharp. It is more handy to have a rack to hold the sheep somewhat above the floor. A wood-sled, with the stakes removed, and a clean floor of boards put on, makes an excellent tagging table for holding the sheep, and will also do excellent service upon the barn floor at shearing time. Racks are made especially for holding sheep while being tagged, and when the flock is of considerable size, it is a saving of labor to make one. The most common form is somewhat like an enlarged "saw-buck" with the upper part made large, and strong enough to hold a sheep. Whether any holder is used or not, the tagging of the sheep should not be neglected, as a matter of both comfort to the animals and economy to the owner.

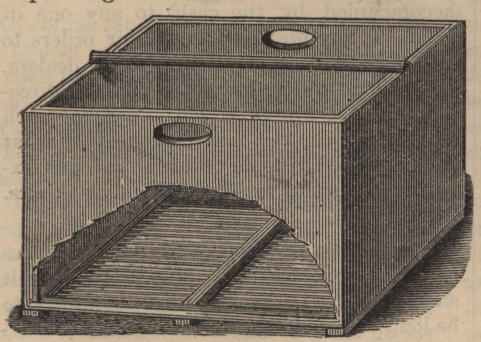
Another Method of Raising a Beef.

The illustrations which we gave in the February number of methods of raising a beef carcass, have evidently interested many, and have called out a considerable number of other devices for performing this operation. The engraving given herewith is made from a sketch sent by Mr. S. Kennedy, Lancaster Co., Pa. The essentials for this method are a rope, two pulleys, and a heavy wagon. One end of the rope is fastened to a cross-beam in the barn, then passes down and under a pulley fastened to the gambrel, and up over a pulley on the cross-beam, from which it runs to the hub of one of the hind wheels of the wagon. This wagon-wheel is raised from the ground, and should be weighted to make it firmly fixed. A load of any kind, that it is desired to draw, as grain, etc., will serve this purpose. The wheel acts as a windlass, the rope being wound around the hub. As the wheel is turned the beef is raised. The carcass can be held at any point by blocking the wheel with a rail or other stout piece of timber. The loose end of the rope may pass to the front wheel, and be fastened there. Care should be taken to have the wagon in line, that the rope may wind properly. With this simple device two men can raise a large beef quickly, and with ease.

A DEVICE FOR RAISING BEEVES.

A Corn "Separator."

"Subscriber," Victor, N. Y., sends a sketch and description of a box which he uses to separate the grain and cobs from a non-separating corn-sheller. It consists of a frame of inch pine, 1½ by 2 feet, and 7 inches deep. A bar is placed lengthwise across the top, to give strength. The bottom is made of wire cut in pieces 2 feet 2 inches long. A loop is made in the end of each piece of wire, and a nail driven through these into the bottom of the frame. The wires are placed far enough apart for the kernels of corn to pass readily through and to retain the cobs. Pieces of lath are nailed over the ends of the wires, and another across the center of the bottom. Holes are cut in the sides of the box to handle it by. The "Separator" thus made is so placed as to catch the corn and cobs as they come from the sheller. When the "Separator" is full, a shake will cause all the corn to pass through the wire bottom, and the cobs can be thrown one side. The whole is made plain by the accompanying engraving.



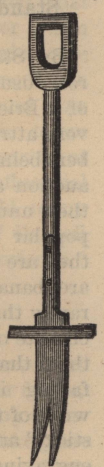
A BOX FOR SEPARATING CORN.

Keep the Factory Busy.

There are several large manufactories not far from where the writer lives, which run night and day. The machinery is seldom still, and the owners are prosperous. Agricultural plants and domestic farm animals are "factory hands," and the farm is the "factory." The plants' work is done in the field, and a ten-acre lot, planted to potatoes or corn, may be looked upon as a great food-producing—yes, a ten-acre starch factory! The soil and the air furnish the crude material out of which the growing plant, under the influence of the sun light, makes the substance of its stem, leaf, and grain—the fabric of its own wonderful structure. The animals take these vegetable products and work them over into other important substances, some of which are essential to our highest welfare and comfort, such as wool, hides for leather, meat, milk, butter, eggs, etc. The success of a factory—strictly so-called—where human hands are at work, depends largely upon having all the space occupied with busy workers for most of the time. The same holds true with plants in the soil. There are farms in the vicinity of New York and other large cities, where the income per acre is over $300, and a careful study of the management of the productive farms or farm gardens, teaches the lesson that the ground is seldom idle. It is impossible for the great wheat growers in the Western States to practice the farming that pays near large cities, but he may gain from it some valuable hints, nevertheless. He may find that it will pay to have enough variety in his crops to give an economic distribution of this working force through the year. If you ask a market gardener in what lies the secret of his success, he will reply: "By having one crop follow another so that I can make the most out of my land." His factory for making early potatoes goes right on making something else, so soon as the potatoes are off. A new set of hands, so to speak, are put to work, and before long the proprietor has a supply of some other produce for sale. The purpose of this simile, or comparing of a farm to a factory, is to lead the farmer to see that the management which brings success in the factory, will be very apt to produce it on the farm. The economy of space and time is as much one of the leading essentials of success in the great thousand-acre "factory" where grains and fruits, beef and wool are produced, as in the one where cloths, or clocks are manufactured.

A Fork for Pulling Docks.

The accompanying engraving of a "Dock Fork" is made from a sketch sent by Horace Emery, Seneca Co., Ohio. He writes: "I have used it for years and find it just the thing. Take a bar of iron ⅝-inch thick by 2 inches wide, split the end about three inches and draw the halves to a point by turning the edges under. Weld a piece of iron across at the upper end, upon which to rest the foot when pushing the fork into the ground. The implement made as here described, is put into a handle—an old spade or fork handle will answer. In using the dock-fork, thrust it into the ground, about two or three inches from the plant, then bear down upon the handle, bringing the dock-root into the fork, when it may be easily lifted out of the ground. The great trouble in pulling docks by hand is, the tops are usually not quite strong enough to bring out the root, unless the ground has been well softened by rains. In the use of this implement a moist time should be selected, as any pieces of root left in the soil, will sooner or later make their appearance as plants.



A DOCK-FORK.

A Small Barn.

Mr. J. H. Excell, Cuyahoga Co., Ohio, sends a sketch of a small barn which he built last summer, and thinks very convenient, for its size and cost. It is 16 by 22 feet, and 14 feet high, with a wagon-shed across one end. This shed is 8 by 16 feet, and 7 feet high at the eaves. The first story of the barn is 8½ feet high; it contains a carriage-room, three good stalls with mangers and hay-shutes. There are two windows and double doors in front, and a single door at the back. The oat-bin is under the stairs; the grain is poured in at the top, and taken out at the bottom, the lower step being higher and broader than the others, and hinged. The upper floor is of inch-matched stuff, and the lower one, inch boards doubled, and laid to break joints, making a warmer floor than planks with cracks between them. The siding is of barn boards, dressed on one side, and battened with ½-inch by 2-inch battens; the cornice is with one-

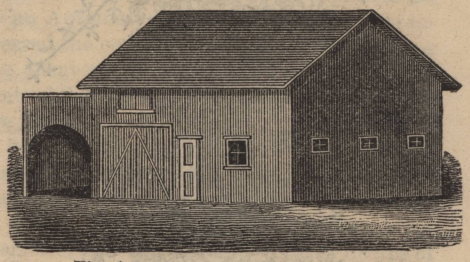


Fig. 1.—FRONT ELEVATION OF BARN.

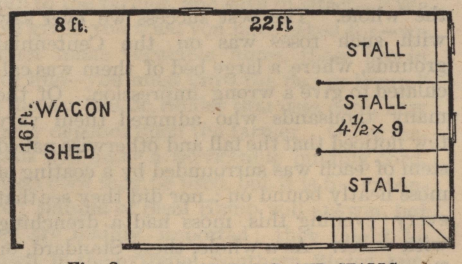


Fig. 2.—PLAN OF FLOOR AND STALLS.

foot projections. The roof is of 18-inch clear, butt pine shingles. Total cost, including foundation and two coats of paint, $175. The front elevation of the barn is shown in fig. 1; plan of the floor and stalls is given in fig. 2.

Standard, or Tree and Pillar Roses.

By Standard, or Tree Roses, is meant a rose, usually a Remontant, budded at the top of a Brier 4 to 8 feet high. They seem to be very attractive to our amateurs, large numbers being imported every year, and sold at auction at very high prices. It is probably their unusual appearance that makes them popular with those who do not know that they are almost as unsuited to our climate as are bananas and pine apples, for it is very rarely that they give a second bloom. The climate of England is much better suited to them than ours, but even there they are fast falling into disfavor. The best rosarians write of them as "a bouquet upon a broomstick," and some of the journals have given engravings intended to bring them into ridicule. The great trouble with Standard Roses in this climate is the effect of our hot suns upon the long naked stem of the stock, which checks its growth and starves the top; this, joined to the effects of a severe winter upon the poorly nourished top, soon puts an end to

A PILLAR ROSE.

the whole. The best success we ever saw with such roses was on the Centennial grounds, where a large bed of them was calculated to give a wrong impression. Of the many thousands who admired them very few noticed that the tall and otherwise naked stem of each was surrounded by a coating of moss neatly bound on; nor did they see that every evening this moss had a drenching with water. As a whole, these Standard, or Tree Roses, may be regarded as utterly unsuited to our climate. If those who buy them at the sales this spring will be satisfied with one year's bloom as a return for the price, very well—for they can expect in ordinary culture but little more. But why try to cultivate these Tree Roses, when Pillar Roses are readily grown and—to persons who do not seek for the odd and unusual—vastly more beautiful. Any vigorous rose, even the climbers, such as Queen of the Prairie, may be grown in this form, with vigorous pruning, but usually the Remontants (Hybrid Perpetuals, so called), are selected. The stake, one of durable wood, or of iron, being set in the ground, the rose is planted close to it. For its subsequent training one must have some knowledge of the principles of pruning; the upward growth must be encouraged, but not allowed to interfere with the formation of side branches. The engraving shows a Pillar Rose complete, and the whole pruning and training must be with a view to furnish the plant with flowering branches from the ground upwards. Another form of the pyramid rose is, to set a strong stake in the center and train four or six roses, planted in a circle around it, to wires leading from strong pegs set in the ground to the top of the stake. Either of these methods is possible in our climate, and gives results more beautiful and satisfactory than the Tree Roses.

Important to Every Farmer.

The American Agriculturist Farm Experiments to be Continued.

If a farmer must invest $19 to get $20 worth of increase from a grain field, his farming can not be profitable, but if he gets $20 from an investment of $5 or $10, that will pay.

Will it Pay to Buy Commercial Fertilizers?

The fact is well established that while it will pay the farmer to buy the fertilizers his soil needs, it is a waste of money to buy and apply constituents of which it already has enough. It is to help farmers to answer the questions: "What does my soil need?"—"What fertilizer can I buy that will be profitable?" that the *American Agriculturist* Experiments were instituted. These experiments were begun in 1878, and have been continued in 1879 and 1880. The results were set forth in the tables last month, and this month, on page 139, we give an array of facts which must convince the most skeptical that the right fertilizers in the right places are profitable. The experience of three years leads us to recommend the same plans for this season. That is to say, we suggest

Two Sets of Experimental Fertilizers.

To wit: the *Acre Set*, costing $8, and the *Half-acre Set*, costing $5. Each set will consist of eight bags, numbered *A*, *B*, *C*, *D*, *E*, *F*, *G*, *H*, which are to be used on eight plots of land, two plots being left unmanured. Bag *A* supplies Nitrogen; bag *B* Phosphoric Acid, and bag *C* Potash; bags *D*, *E*, and *F*, furnish the same materials in twos; bag *G* all three together, as a "complete fertilizer," while bag *H* contains Plaster. Each bag of the Acre Set contains material for one-tenth of an acre. The contents will be as below:

ACRE SET.

Bag No.	Kind.	Amount.		Valuable Ingredients.
A.	Nitrate of Soda	20	lbs.	Nitrogen.
B.	Superphosphate	30	"	Phos. Acid.
C.	Muriate of Potash	20	"	Potash.
D.	Nitrate of Soda	15	"	Nitrogen.
	Superphosphate	30	"	Phos. Acid.
E.	Nitrate of Soda	15	"	Nitrogen.
	Muriate of Potash	20	"	Potash.
F.	Superphosphate	30	"	Phos. Acid.
	Muriate of Potash	20	"	Potash.
G.	Nitrate of Soda	15	"	Nitrogen.
	Superphosphate	30	"	Phos. Acid.
	Muriate of Potash	20	"	Potash.
H.	Plaster	20	"	

The Half-acre Set is the same except that the quantities are only half as large, each bag being intended for one-twentieth of an acre.

The Manner of Conducting the Experiments,

is very simple. A plot of an acre, or half an acre, of uniform, nearly level, worn-out land, is laid out in ten parallel strips, the first and last left unmanured, while the contents of one of the eight bags is applied to each of the intervening eight plots. The whole is then planted with potatoes, corn, or other crop, as is convenient, cultivated with care, and the produce on each plot noted. Full explanations of the experiments and directions for making them, are given in pamphlets which go with each set of fertilizers.

What may be Expected from the Experiment.

First—By watching the growth, and measuring the gathered crop, it will be easy to to see how the crop on that soil is affected by each material and mixture.

Second—A comparison of each lot with the *no fertilizer* plots, 0, 00, will show which fertilizer pays the greatest profit.

Third—Such experiments stimulate thought, and lead to more extended investigations.

Fourth—It will be a good step towards helping each experimenter to decide for himself, and for his neighbors, *what* fertilizers, if any, they can use more largely in the future.

Fifth—Experiments like these will awaken interest in the minds of boys, and serve as an excellent school for them.

It is recommended that other fertilizers than those in the sets be used on parallel plots of the same size.

A majority of the experimenters selected Corn and Potatoes, probably because they are easy to manage, but more trials made with Grain, Grass, Sorghum, and Roots, and in the Southern States, Cotton, Sugar Cane, and Cow Peas, are particularly desirable.

We urge upon the experimenters of previous seasons the importance of repeating the trials through a serious of years, and trust many will continue the good work, and report their results.

The parties who furnish the sets are (placed alphabetically):

Henry J. Baker & Bro., 215 Pearl Street, New York.

Bowker Fertilizer Co., 43 Chatham Street, Boston, and 3 Park Place, New York.

Geo. B. Forrester, 188 Pearl Street, New York.

Mapes' Formula and Peruvian Guano Co., 158 Front Street, New York.

These houses will each put up precisely the same articles, subject to analyses by Prof. Atwater. Our readers may send their orders (accompanied by the cash) to any one of them. If any prefer to send their orders to this office, we will hand them to the dealers.

Let each farmer study carefully the directions and the Pamphlet accompanying each set, that a clear idea may be gained of what he is expected to do in order to make his experiments useful to himself, and to others.

Puddling the roots of transplanted trees is a simple operation, but is so useful that it should always be done with trees that are to be long out of the ground, and it is also advisable to treat cabbage and other vegetable plants in the same manner. Dig a hole where the soil is loamy, and pour in water, mixing the soil and water to form a thin mud. In this mud, which should be about as thick as cream, dip the roots of the trees and plants and work them about so that all, even the smallest fibres, will be well coated. If the

trees are to be moved or packed at once, some fine dry soil sifted upon the coated roots will help dry them. If more convenient the puddling (or grouting as some call it) may be made in an old tub. When properly puddled even the smallest fibres of the roots will be protected, and none need be lost by drying.

A New Watermelon—"Cuban Queen."

It is some years since a new variety of Watermelon has been offered, and for this reason the "Cuban Queen" comes as a greater novelty than would a new variety of Tomato, or Pea, among which we always look for new sorts. The "Cuban Queen," as might be expected, comes from the West Indies, and is claimed by Messrs. W. Atlee Burpee & Co., to be "the largest and finest variety in the world," beyond which but little can be said. We give an engraving which shows the regular form and markings, which are

A NEW WATERMELON—"CUBAN QUEEN."

strikingly beautiful from the distinct shades of light and dark-green here intermingled. The solidity of the variety is one of its marked characters, it weighing a third more than ordinary melons of the same size. Mr. B. assures us that in quality of flesh, thinness of rind, great productiveness, and keeping qualities, it has proved superior to any other he has known. The photograph for our engraving was taken from a specimen weighing 82 pounds. The introducer offers $50 in prizes to the raisers of the largest melons of the "Cuban Queen" the coming season.

Shall We Grow Artichokes?

Of course the Artichoke referred to is the Jerusalem; the true or Globe Artichoke is so little known in this country that it hardly is necessary, in speaking of Artichokes as a farm crop, to use the prefix, Jerusalem. Whether, as thought by good authorities, the diseases known collectively as "hog cholera," is largely due to feeding exclusively on corn, there is no doubt that the health of swine, as of other animals, is improved by a variety of food; and while all are agreed as to the value of corn for fattening hogs, it is not the best food upon which to build up the frame previous to fattening. All who have tried Artichokes fairly, as swine food, agree as to the value of the crop. It has the advantage that it requires little labor; the animals do the harvesting, and the portion to be kept over winter may be left in the ground until wanted. While the chief value of the Artichoke is as food for swine, it is most acceptable to other farm animals as a variety, and in spring, especially, an occasional feed of the tubers may be given to cattle and horses with great benefit to their appetites and health. The old-fashioned, long white Artichoke, and probably the original, is of little value in comparison with the improved varieties; it is a poorer cropper, and more disposed to run about in the ground. The French have produced from the original white tuber, those with red and yellow skins, and of each of these colors, including also the white, forms more or less rounded or globular. The varieties most prized by western cultivators are the round white and round red. The first of these is known as Large White French, and the other the Red Brazilian; while this last will answer as well as any other as a distinctive name, it must not be taken as descriptive of its origin. Though the books give South America as the native country of the Artichoke, it is not, as was shown in an article a few years ago, on the origin of the plant, even known there, but the evidence all points to one of our Sunflowers, native of the West and Southwest, as its parent. The kind of soil and preparation, as well as time of planting, are the same as required by Indian Corn. The land is laid out in shallow furrows 3½ feet apart; the "seed" or tubers are cut to a single eye, and the pieces dropped 18 inches apart, and covered not over two or three inches. When the plants are young the cultivator should be run through them a few times, but they soon get too high for working. The crop is ready for use about October 1, when the hogs are turned on. As to the yield, some reports seem almost incredible, placing 400 to 600 bushels as a medium yield, and as high as 1,500 or 2,000 bushels to the acre have been *estimated*. At the least of these figures the amount of food thus produced is enormous. The tops, either green or cured, are eaten readily by horses, mules, and cattle; several years ago we published on account of a lady who cultivated the Artichoke for the sake of the tops, which furnished a large share of the fodder for her cow. One point should be observed: there are few plants so exhaustive as this of one of the most valuable constituents of the soil—potash—and the tops, leaves, or stalks, should in some manner be returned to the soil. If not fed or composted, then the trash should be raked together and burned, scattering the ashes upon the field.

Agricultural Light.—To-day (March 5th) brings to a large share of the 50 millions of the people of the United States the inaugural address of our new President. The farming classes will see that among all the other important questions their best interests are not forgotten. "The farms of the United States afford homes and employment for more than one half our people, and furnish much the largest part of all our exports. As the Government lights our coast for the protection of mariners and the benefit of commerce, so it should give the tillers of the soil the lights of practical science and experience." It would be difficult to express a warmer sympathy for, or a higher appreciation of, agriculture, and at the same time put it in a smaller space. When President Garfield said farther that "The interests of agriculture deserve more attention from the government than they have yet received," he stated what not only he, but thousands of other warm friends of progressive American agriculture know to be too true. The government can do much for the farming classes, and now let it be seen that forthwith steps be taken and methods devised to bring the Department of Agriculture to the high and influential position that it ought to have held many years ago, and give "to the tillers of the soil the lights of practical science and experience."

A New Demand for Flax.

It is interesting to notice the influence that one form of industry exerts upon other forms, and the manner in which one discovery or invention leads the way to another. Take photography, for example, an art which has given rise to the extended manufacture of chemicals and other things that, 50 years ago, were hardly known by name, and this in turn could not have been possible but for the accidental discovery of gun-cotton. But we need not go off of the farm to see how the improvements in various arts contribute to our needs, and lead the way to improvements in agriculture. Our grain-drills call upon the manufacturers of India-rubber. Bessemer, in cheapening steel, makes possible steel-plows, horse-rakes, and a host of other machines that require steel, and even allows our produce to go to market more cheaply on account of steel-rails. The Reaping-machine was not complete until it was supplemented by an Automatic Binder, and this in turn increased the consumption of wire for binding the sheaves. But farmers have discovered that while wire answers to bind the grain, its use is undesirable for various reasons, mainly because it is dangerous. The unavoidable scattering of bits of wire about the farm, and the almost inevitable mingling of fragments of wire with the straw from the thrashing-machine, have already caused many deaths of animals, even while comparatively few binders are in use, that the fear of this threatens to stand in the way of the rapid introduction of these important adjuncts to the reaper. The general demand is now for an Automatic Binder that uses twine. The farmer has looked to the inventors for such a binder, and the demand has been met. They have supplied the binder, but who will supply the material for binding? Here the inventor turns again to the farmer, and says in effect—"We have given you what you have asked for—we cannot make vegetable fibres, those are in your line—you must grow the flax or hemp." So the Automatic Binder that uses cord, now largely depends upon the farmer. Other materials will make a serviceable binding cord. Cotton cord may be used, but it is too expensive; Manilla or Sisal Hemp will answer, but they are mainly imported; they might be grown in the extreme Southern States, but, being new cultures, almost, it would take a long time to establish them. Hemp is a good material for cordage, but its production is very limited. So, upon a full survey of all the sources of fibre suitable for making binding-cord, the makers of the machines look to flax, not only as the best material, but one the culture of which presents no

special difficulties, or requirements of climate, but which almost any farm in good tillage can supply. For this purpose the land and method of culture need not be such as are demanded to produce the finest fibre, such as is required for thread and linen, as a coarse material will answer for binding-twine. It would appear that this new demand for flax, by the binding machines, is likely to influence and give a new impetus to its cultivation.

As showing how inventions influence and supplement one another, we described in

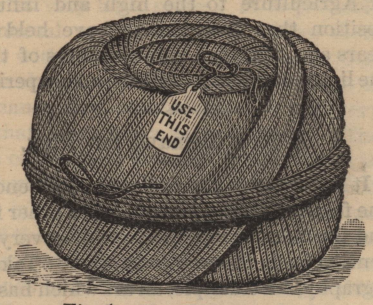


Fig. 1.—A BALL OF TWINE.

June last (1880), the Flax Brake of the "American Vegetable Fibre Company," of Philadelphia. This machine, or some similar one, it seems to us, is to play an important part in meeting this new demand for Flax. In the description referred to, it was stated that one great merit of this machine was, that it allowed the straw of flax grown for seed, to be utilized instead of going mainly to waste as heretofore, and gave assent to the assertion of the Fibre Company that the machine "bids fair to give a new history to the whole business"—referring to flax growing. This demand for fibre for binding-twine is just such as this machine can supply, and the Automatic Binder, though probably invented without a knowledge of the existence of such a brake, may be the means of bringing that into extended operation.

In all cases, where the demand for a crop depends upon a manufacture, there is a difficulty at first in bringing the two together. The farmer will not raise the crop unless fairly sure of a sale. The manufacturer will not establish his factory unless he can feel sure of a supply of the raw material to work up.

Let us see how the case stands in the present instance. The makers of Automatic Binders assure us that there is to be a large demand for binding material; that the uncertainty of a sufficient supply of cheap binding-twine is a source of no little anxiety to them. There is always a sale for Flax seed, and as many grow the crop for the seed alone, it is likely to be fairly remunerative. Flax grown for seed does not need the high culture required by that for choice fibre; any good grain land, or a turned sod, will give a fair crop. There are no special difficulties attending the culture. If the fibre is to be saved as well as the seed, the flax is harvested when the stem has lost its green color for two-thirds of its length, and made into small bundles. The top, or seed-bearing portion, is cut off with a hay-cutter having a single lever knife, to remove that portion at a clip, and the stalks rotted in the usual manner—either by steeping or by dew-rotting. Up to this point all is done by the farmer without any unusual machinery or appliances. The next step is the separation of the fibre for sale, and in this day of dear labor, hand-breaking, and scutching, will not be thought of.

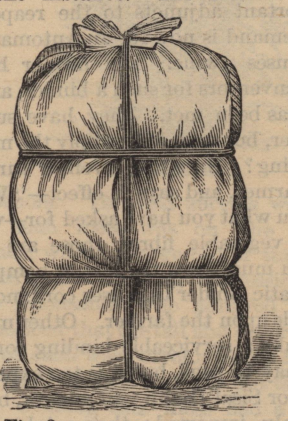


Fig. 2.—A SACK FILLED WITH TWINE.

Just here is where the farmer who would raise flax, meets with his first obstacle. He must have a machine, and it is beyond his means. What can he do with his flax? If several farmers, especially if one has water-power, or steam-power, can club together and purchase a brake, or if they can induce some manufacturer in the vicinity to establish one, and break at a fair price, the difficulty can be removed. We have no other interest in the American Vegetable Fibre Co.'s machine, referred to, than the fact that it is of importance to the farming industry, and having seen it in operation, we know that it does its work most effectively. If we knew of another equally useful we should also speak of that. It would seem that here is an opportunity for some one of enterprise, and with moderate capital, in each township, to do a fair business, by proposing to put a brake in operation if the neighboring farmers will agree to raise enough flax to keep it running for a certain length of time. Here is the sticking point. The makers of Binding machines ask us with much emphasis, to interest farmers in the culture of flax, in order to meet the coming demand for cheap binding-twine. We are most willing to do this, *if* we can also show them how to get the flax into marketable condition. The cordage makers will not buy the flax unbroken, nor would it pay to transport such a bulky article to a great distance. The case is one that calls for a co-operation of producer and manufacturer. Those farmers who are able to become manufacturers so far as to prepare their own and their neighbors' flax for market, will be likely to find it profitable.

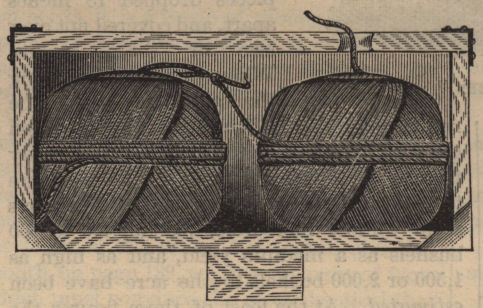


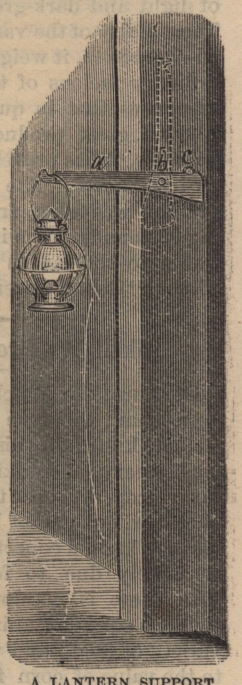
Fig. 3.—INTERIOR VIEW OF TWINE-BOX.

The makers of Reaping Machines, with Binders, feel, very properly, that the success of their machines depends upon the ability of those who use them to readily procure a sufficient quantity of suitable cord at fair prices. One Company has the matter so much at heart that it has sent out a circular to show just what kind of cord is needed, and how it should be balled and packed. This circular is more especially intended for cordage makers, but we give its essential points to make our article more complete. The cord, if of flax, should be 3-ply or 4-ply; should not run less than 600 nor more than 700 feet to the pound, and be able to withstand a strain of 80 pounds; one meeting this description will answer for use in any of the successful binders now made. Figure 1, shows the ball as sent from the factory, it being about 7½ inches in diameter, and the same in hight; the inner end is drawn out from the middle, looped around a few strands, and tied in a bow knot; a small tag is attached here directing "use from this end." In the making of the cord, vegetable oils should not be used, as they heat and encourage insects, but coal oil, or animal oils will answer; it may be made insect proof, and weather proof, by the use of a mixture of tar and coal oil.

The outer end of the cord is wrapped half a dozen turns around the middle of the ball, the end looped around a few of the strands and tied in a bow knot. Figure 2 shows the manner of sacking the twine for market, in three tiers of four each. The twine-box of the binder usually holds two balls, and fig. 3 shows the manner in which the outer end of one ball is connected with the inner end of the other, so that they may run off continuously. In the circular before us it is estimated that from four to five thousand tons of cord will be required by binders this year, and that next year the demand will be doubled, etc. It appears to be a manufacture which commends itself to enterprising persons as one of increasing importance.

Lights in the Stable.

Mr. J. T. McLaughlin, Westmoreland Co., Pa., describes a device for holding a lantern in a stable, as follows: "It is often very desirable to have some artificial light in the stable or barn. Assuming that no light should be taken into the out-buildings unless it is a perfectly safe one, and properly protected by a lantern of some kind, the question where to so place this lantern that it will be both convenient and safe, is one of importance. To set the lantern on the floor is as inconvenient and as unsafe as possible. It is not safe to hang it near the hay, straw, etc. The inclosed drawing will give an idea of an arrangement I have long used in my cow stable, which works well. The arm *a* is made of good hard-wood, and is fastened to the post at *b* by a pivot on which it moves freely. It is so formed that the short end is the heaviest. When in use the position is as shown in the drawing; a nail or pin at *c* preventing it from falling below a horizontal position. When the lantern is removed from the support, the weight of the short end causes the arm to fall into the position shown by the dotted lines, where it is entirely out of the way." The accompanying engraving, made from Mr. McL.'s drawing, shows the "hook" with a lantern hung upon it. So simple a device as this, that can be made in a few minutes, should be in every stable where a lantern is used.



A LANTERN SUPPORT IN THE STABLE.

Our New Location.

We are all more than delighted with our new Establishment at 751 Broadway, and the many visitors are equally pleased. All our readers coming to the city will be cordially welcomed. The location, surroundings, and easy access, were mapped on page 121, last month.

Moving, Office alterations and improvements, and the unprecedented mail-obstructing storms, delayed the delivery of the March number to a later date than has happened before in thirty years, or will be likely to happen again in the next quarter century.

Sundry Humbugs.

We have repeated again and again that the very fact that a thing claimed to be new, whether seed or plant—tree, or shrub, was offered by a travelling "agent" or vender, was enough to excite suspicion. New seeds and plants of all kinds, when first offered, are held at a high price, for the reason that the amount that can be propagated must be very small. At first the price for such new things places them quite beyond the reach of the average peddler. The latest case of this kind is brought to our notice by a circular which has been issued in Pennsylvania by one "Reuben Acker." Reuben is offering

"20,000 Grape Vines,"

and they are "winter-keeping grapes" at that. The names he gives are: "Owosso," "Newton," "Munroe," and "Jefferson," and they are said to be raised at a Rochester nursery. When one starts on a doubtful scheme with fruit, it is not well to be too particular in description, etc. The "Owosso" and "Newton" are varieties about which we know nothing. We at once made inquiries of parties who know every square foot of Rochester, and it would be impossible for any one to raise 20,000 of these or any other grapes without its being known to the trade there. Both gentlemen say that they know of no such propagation of grapes being carried on there. As to the "Munroe" grape, it originated with Ellwanger & Barry, of Rochester, who write "the parties have no authority to use the name, 'Munroe,' and that they know nothing of Reuben Acker." As to "Jefferson," any one who keeps the run of grape matters knows that this is one of the fine varieties obtained by Mr. Ricketts, of Newburgh. He placed it in the hands of Mr. J. G. Burrow, of Fishkill, N. Y., who alone is likely, at present, to offer the genuine in quantity. The ignorance of the Acker's circular, is shown by the description of the "Jefferson." We are told, it is: "Very large, roundish oval, *light-red*, with a thin, lilac bloom; flesh meaty, * * * color, *black*." A remarkable grape that, to be "light-red" and "black," both at once. One party writes that these grapes, to

The Value of Thousands of Dollars,

have been sold in his section, that the seller was in February showing and allowing people to taste of samples purporting to be these. We can not tell what grapes were shown in this way, but are very sure they were not "Munroe" nor "Jefferson."

Another Swindle upon Farmers.

Last month, in describing "Pringle's Excelsior," a new Hulless Oat, we mentioned that the common, or Chinese Hulless Oat, notwithstanding it came up as new, every few years, would lead one who would trace its age, back into Chinese antiquity. That page had hardly gone to press before a proof came to hand that the Hulless Oats were as *new* as ever. A friend who lives inPennsylvania writes that a chap in his vicinity is fleecing the farmers by selling "Siberian Hulless Oats" at the moderate price of $1 per pound, no one farmer to have more than a single pound, and the sale to each township being limited to 20 pounds. On the bag this is called "a new variety of oats," and a "new cereal," and people are advised to "secure some at once, as there are only a few to be had" —a story we have heard repeated these 40 years. So long as farmers will buy such things there will be those who are ready to sell them.

A swindle upon farmers that has been so quiet for several years that we supposed it to be dead, now shows signs of renewed life. It is the old

"Golden Butter Compound,"

made in Ohio, and which claims by its use to double the quantity of butter! A family which makes for sale but 10 pounds a week, can with this stuff make 20 pounds, and so on, and it is claimed that the increase will be "pure butter." Very profitable it must be for the farmer to thus easily double his butter yield. We can conceive of no more lucrative business than that of making two kegs of butter out of one at a cost not to exceed 3 cents per pound. We could get up a company with capital in a few days, and by doubling up the butter, make a handsome fortune in a few months. Why don't these Ohio people do this? Instead, they send out circulars showing parties how *they* can make money by peddling this stuff around the country to farmers, and in showing how profitable it is to agents. If there are any people who believe that something can be made out of nothing, they are not likely to be found among the readers of the *Amer. Agriculturist.*

Claims Against the U. S.

The law has made the career of the Washington "shysters" or claim attorneys more difficult than formerly. Still some of them exist and ply their trade. One of our subscribers has received a letter from one of these, which begins: "Dear Sir—I think I know of some money due you here, which you know nothing about." The writer sends a blank Power of Attorney to be filled out, and claims to be a "member of the Bar of the Supreme Court." The friend who sends it asks us to give our "opinion." Our opinion is that no member of such "Bar" would engage in such shyster business; our opinion is that it is opening the way to ask for money, and our most decided opinion is that we should not sign a Power of Attorney..... Here is a quite new mild form of imposition—

The Memorial Dodge,

and this too comes from Cincinnati. One of our Connecticut friends received a parcel by mail; upon opening, it was found to contain a cheerful picture of a grave yard, with places for locks of hair, and photographs. The circular states: "we have poetry already in type adapted to different ages and characters." The one who receives this "memorial is requested to return it or send us one dollar on its reception." This is a very cool proceeding. Here is a quiet person who finds his house invaded by a stranger in the form of a parcel. He is put to the trouble of opening the package, and then learns that he can have the so-called "Memorial" by paying for it, or if he does not want it he can get rid of it by paying its postage back to Cincinnati. The amount of postage required to return the thing is small, but, nevertheless, a swindle—as is everything that requires one to pay out money without an equivalent. Our correspondent says that he would not accept the picture as a gift, but fears if he does not return it and pay postage the Cincinnati chaps can come upon him for the value of the picture. We should let them try it.

"The Illustrated Literary Gazette"

is the name of a sheet published in a small Massachusetts town, the name of which we do not give, as we do not care to extend to the thing the benefit of the advertising. A father in New Hampshire congratulates himself that the paper came into his hands, instead of those of his son. We do not wonder, when we find that the paper advertises things to which the caution is appended: "Don't let the old folks see it."....When the advertisement of Pettibone & Co. was inserted on page 39 of our last January issue, it was upon the strong endorsement of a party we have regarded as thoroughly responsible and reliable. Complaints having come from our subscribers of their dissappointment in the quality of the articles received, we withdraw all endorsement implied in the admission of the advertisement into our columns. ....The literature of medical quackery, if collected and preserved, would form a most curious library—though, if we would be thought well of by future generations, it may be as well to let it perish. We have before us a case of

Most Outrageous Plagiarism.

There is a medicine called "Peace in the Family." A neat, little pink-covered pamphlet sets forth its virtues, and is signed E. R. Glenn, 134 ——— street, Brooklyn, N. Y. There is another medicine called "The Doctor's Rival." Its virtues are set forth in a larger pink-covered pamphlet, or what might be one, were its loose sheets stitched—with the signature of Milton Wolcott, Brooklyn, N. Y. "Peace" pamphlet starts on its first page with "How to Gain Wealth." "Rival" ditto opens with "How to Become Rich." In "Peace," we read: "No dishonest person can really enjoy wealth when gained."—"Rival" puts it thus: "No dishonest person can really enjoy wealth when gained."—Glenn tells us something about himself: "I would enjoy myself more in giving a dollar than deprive any one of a cent," which gives us a more favorable impression of G.'s morals than of his grammar. But here is Wolcott, who is so happily constituted that he, with equal disregard of grammar says: "I would enjoy myself more in giving a dollar than deprive any one of a cent."—But we need not quote more. Both "Peace in the Family," and "The Doctor's Rival" are in "packages," both sent by mail. Directions for mixing, the same in both, with some trivial differences. When we come to the diseases which "Peace in the Family" is to cure, and directions for use, the story is the same in both, except where the name of the stuff occurs. It is very plain that either Glenn has stolen Wolcott's thunder, or Wolcott has appropriated the thunder of Glenn. As the case thus far appears, what sympathies we have are on the side of

Glenn and "Peace in the Family,"

for hasn't it a picture, and we always did like pictures with our medicine, and this is the highest kind of art. A picture!—yes, two of them—Peace in pieces, so so speak, a regular double-header! On the left we have a "Family," in which there is no "Peace" to speak of. The father, seated, nurses a rheumatic foot. Mother, standing, holds her neuralgic face in one hand, and the baby in the other; small boy scrambles out of the way of hot tea from a tea-pot, which a savage-looking cat has overturned, and then there is, allegorically introduced, a 'personage whose name is usually written with a D and a dash ——. On the right hand we have father standing and tossing the baby; mother, grown 20 years younger, is seated, sewing; small boy, with hair grown long, is reading, possibly a copy of this very pamphlet. Pussy lies stretched out as if she never saw a tea-pot. Then, in the place of the allegorical D——, there is coming in at the door, an angel. She is rather ragged as to wings, but it may be about moulting time, and she's rather hefty as angels go. But she bears aloft in her right hand a bottle, so to speak, paregorically. But above all, "on the mantry shelf" where any one "can tech" their "lips to it when so dispoged," there stands a bottle of—what should it be but

"Peace in the Family."

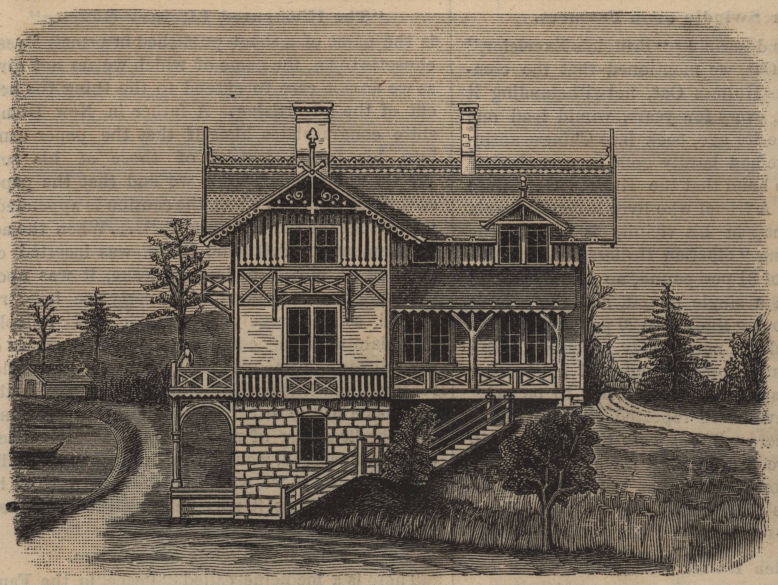


Fig. 1.—FRONT ELEVATION OF HOUSE.

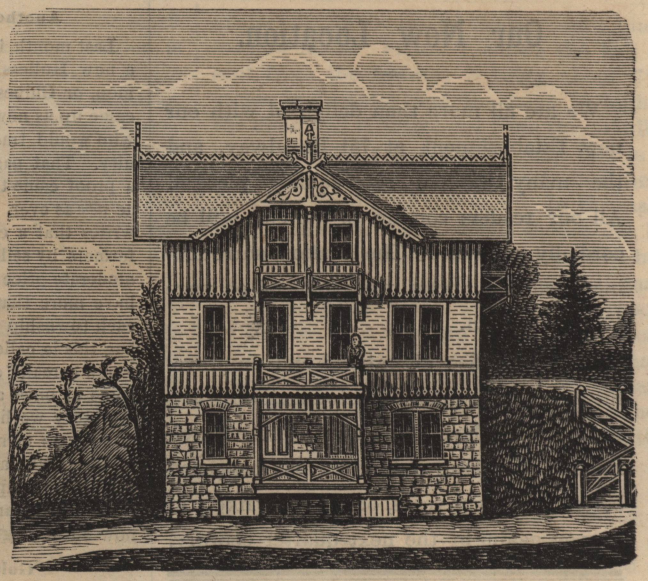


Fig. 2.—SIDE ELEVATION OF HOUSE.

A Country House, Costing $1,600.

BY S. B. REED, ARCHITECT.

These plans are designed for a country residence. The site selected may be somewhat distant from the main road, upon undulatory, wooded, and otherwise picturesque ground. .... **Exterior.**—(Fig. 1). This elevation shows the front facing the main road. The general conformation of this building to the declivity of the grounds, together with its rustic details of finish, give it a Swiss-like appearance, which is in accord with the surroundings. It will be seen that the grounds at the right are one story higher than those on the left. The principal walk or drives are along the higher grounds at the right, contiguous to the veranda, from which the main entrance is conveniently reached.... Figure 2 shows the side elevation. The walled or basement story appears full hight above ground, giving increased prominence to this part of the building.... **Basement,** figure 3. Hight of ceiling in finished parts, 8½ feet; cellar, 7 feet. This story contains a dining-room, kitchen, hall, pantry, cellar, and closet. The two principal rooms have doors leading directly to the porch, and to the hall, which contains a stairway leading to the floor above. The kitchen and dining-rooms are well lighted, and have open fireplaces. The cellar is cemented on the bottom; all other parts are floored.... **First Story.**—Figure 4. Hight of principal building, 10 feet. Bath-room, 7 feet. The divisions include a hall, parlor, sitting-room, library, and bath-room. The sitting-room, and library, also have a closet each. The main hall has double entrance doors and connects by doors with each of the four apartments. **Second Story.**—Figure 5. Hight, 9 feet. There is a hall, two chambers, three bedrooms, and three closets on this floor.... **Construction.**—The foundations are of broken stone, laid in mortar, 18 inches thick, extending in the earth below the reach of frost, and neatly pointed where exposed to sight. The beams for the basement floor are of 3 by 8-inch timber, with a 4 by 8-inch girder supporting their centers, and leaving a clear space of from 6 to 20 inches below them for the passage and circulation of air under the porch, as shown in figure 2. The cellar has a concrete bottom, with two steps of masonry upward from the hall. The upper frame is of square, sawed timber, thoroughly framed and secured. The horizontal siding is of 6-inch clapboards; the vertical of 9½-inch tongued and grooved ceiling boards, belted; all on sheathing felt. The roofs are of slate, with tin valleys, gutters, and leaders. Windows have four lights, with 1½-inch sash hung to weights. Doors of pine, paneled and moulded. Stairs, pine, with black walnut, newel and rail, and balusters. Closets shelved and hooped in the usual manner. All wood work usually painted has two coats of paint. The appended estimate will furnish additional information. It will be seen that the cost of plumbing is here omitted, as the supply of water in most cases comes from a spring or well on the farm: **Estimated** cost of material and labor is given in full below:

142 yards Excavation, at 20c. per yard	$ 28.40
1,800 feet Stone Work (complete) at 6c. per foot	108.00
4,000 Brick in chimneys (complete) at $12 per M	48.00
759 yards Plastering (complete) at 20c. per yard	151.80
5,000 feet Timber, at $20 per M	100.00
2 Sills 4x8 in. 32 ft. long.	2 Ties 4x6 in. 32 ft. long.
2 Sills 4x8 in. 20 ft. long.	2 Ties 4x6 in. 20 ft. long.
1 Sill 4x8 in. 24 ft. long.	6 Ties 4x6 in. 16 ft. long.
2 Sills 4x8 in. 16 ft. long.	2 Plates 4x6 in. 32 ft. long.
1 Sill 4x8 in. 6 ft. long.	2 Plates 4x6 in. 20 ft. long.
9 Posts 4x7 in. 20 ft. long.	75 Beams 3x8 in. 16 ft. long.
1 Post 4x7 in. 16 ft. long.	56 Rafters 3x4 in. 13 ft. long.
1 Ridge 3x8 in. 68 ft. long.	1 Veranda 3x8 in. 60 ft. long.
24 Joists, at 15c. each	3 60
360 Wall Strips, at 10c.	36 00
130 Horizontal Siding (6-inch), at 15c.	19 50
150 Vertical Siding (9-inch), at 27c.	40 50
150 Battens, at 4c.	6 00
Cornice Materials	30 00
164 Hemlock Boards, at 15c.	24 60
16½ Square Slate, at $8	132 00
330 Tin Gutters, Valleys, and Leaders, at 8c.	26 40
480 Flooring (4½ inches), at 12c. each	57 60
5 Basement Windows (complete), at $5.	25 00
3 Cellar Windows (complete), at $2 each	6 00
27 Plain Windows (complete), at $6 each	162 00
2 Stairs (complete)	35 00
25 Doors (complete), at $7 each	175 00
Pantry and Closets, finished, complete	15 00
Carting	25 00
Painting, complete	100 00
Carpenters' labor, not included above	200 00
Incidentals	44 60
Total cost of the building, completed	$1,600

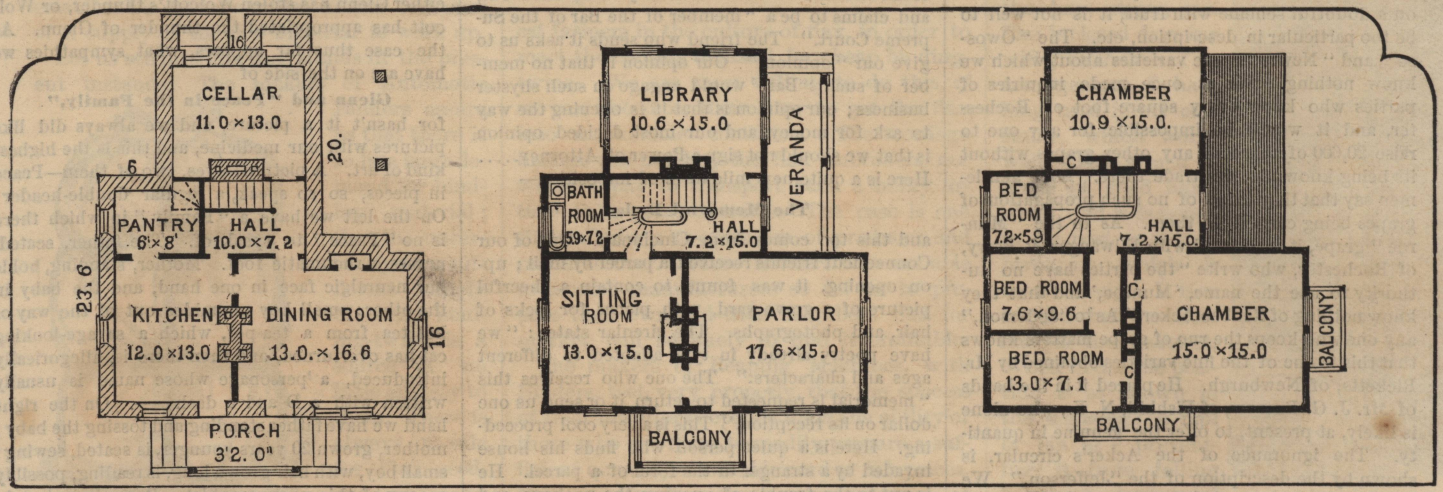


Fig. 3.—PLAN OF BASEMENT. Fig. 4.—PLAN OF FIRST STORY. Fig. 5.—PLAN OF SECOND STORY.

A Caution in Using Fertilizers.—If concentrated fertilizers are used in close contact with seeds or very young plants, great damage may be done. All such concentrated manures should be thoroughly mixed with the soil by means of a harrow or cultivator, or scattered very thinly over the surface. A very small quantity of guano, etc., in contact with a large seed will always kill it.

The Jersey Bull "Ramapo" (4676).

The plan laid out for the work at Houghton Farm includes the breeding of a herd of superior butter-makers, to be known as the Houghton Farm Jerseys. The first important step to this end was the selection of a bull that should possess the highest butter characteristics, and would uniformly impress these upon his offspring. The choice fell upon "Ramapo," a bull which not only represents in himself a high type of the choice butter-making Jerseys, but his breeding gives assurance that he will be able to transmit the characters that have made famous the family he represents. His dam "Eurotas" (see *American Agriculturist*, August and December, 1880), made, in the year following his birth, the most remarkable performance as a butter-maker on record. That this is not a "spontaneous variation," but the result of judicious, high breeding, is shown by the many wonderful records made by other members of this family. "Ramapo" was dropped Oct. 31, 1879. His sire "Miletus" (3186), was by "Domino of Darlington" (2459), an inbred "Alphea" bull, on the side of his sire, out of "Premium of Darlington" (5572), belonging to a choice milking family. His dam "Eurotas" (2454), was by imported "Rioter 2d" (469), a bull that was very successful when crossed on the "Alphea" blood, producing some extraordinary cows—2d dam "Europa" (176), by "Jupiter" (93)—3d dam "Alphea" (171), by imported "Saturn" (94). "Ramapo" is solid color, with black tongue and switch. The photograph, from which the engraving here presented is made, was taken in August 1880, when he was ten months old. At the time of writing "Ramapo" shows great stamina or constitution, and is remarkably strong in those points that indicate in the male the milking qualities that he inherits from his noted ancestry. The cows selected to breed to "Ramapo" include the noted "Lass Edith" (6290), and "Myra 2d" (6289), of nearly pure "Alphea" blood. Another rich milker, "Lady Cornwall" (7179), and others imported direct from the Island of Jersey, that give promise of choice butter-making qualities, also belong to the herd of Jerseys at Houghton Farm.

THE JERSEY BULL "RAMAPO."

Wild Dogs.

Though much has been written upon the origin of the domesticated dog, the subject is still very obscure. Many naturalists regard the wolf (fig. 1) as the progenitor of the various breeds of dogs, for the following reasons: It is found that the domesticated dog, when turned wild, that is, removed from his associations with mankind, gradually assumes the characteristics and general habits of the wolf. After a number of generations of this downward breeding, there appear the lank or gaunt form, the long, slender muzzle, and great comparative strength of the wolf. The probable identity of the wolf and dog is strengthened by the fact that they readily breed together, and that their progeny are fertile. The relationship which the dog bears to the fox is much the same as to the wolf. The Dingo is the native dog of Australia, where it exists both wild and domesticated. It will be seen at once from the engraving (fig. 2), that the Dingo resembles the fox very closely in the shape of its body and tail, while its head is that of a wolf. In its wild state this dog does not bark. It is very destructive to the sheep, and delights in killing as many as possible before eating any—in this respect not unlike the dogs which are so destructive to the flocks of our own country. The Dingo crosses with the terrier and other common breeds of dogs. The native wild dog of India is called the Dhole, and is much like the Dingo except the tail, which is not bushy. The Dhole is of the size of a small greyhound, with a slender body, and thinly covered with reddish brown hair. These wild dogs hunt in packs, with very little baying or other sound as they run, and with sufficient speed to take most kinds of game that rely upon flight for safety. They are particularly fond of the elk and royal tiger. The Pariah is the name for the half domesticated dogs which swarm about villages in India. These dogs are mongrels, being mostly crosses between the Dhole and introduced breeds and varieties.

The native dogs of Africa are of various sizes, shapes, and colors. They are half wild; owned by no one, they subsist by hunting wild beasts in packs. The leading one is the Ekia, very savage and wolf-like in nature. These dogs are always ready to attack a stranger on his entrance into a native village.

Other kinds of wild dogs are described by travellers, but they all indicate that they are very closely related to the wolf, fox, and the

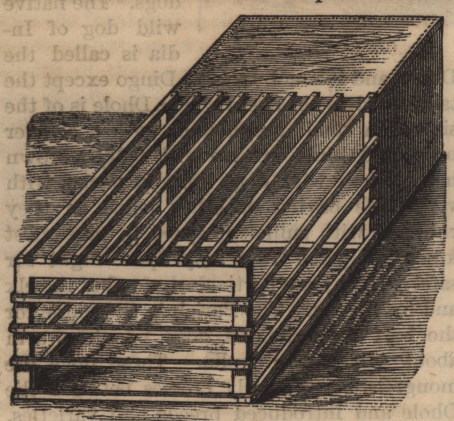
Fig. 1.—THE COMMON WOLF.

Fig. 2.—THE DINGO OF AUSTRALIA.

jackal. Darwin, in his work on "Animals and Plants under Domestication," concludes a long discussion of the origin of the domestic dog, with the following: "When we reflect on the inherent improbability of man having domesticated throughout the world one single species alone of so widely distributed, so easily tamed and so useful a group as the Canidæ; when we reflect on the extreme antiquity of the different breeds, and especially when we reflect on the close similarity, both in external structure and habits between the domestic dogs of various countries and the wild species still inhabiting these same countries, the balance of evidence is strongly in favor of the multiple origin of our dogs." Other naturalists agree with Darwin.

Box Chicken Coop.

Mr. M. O. Lanfair, Franklin Co., Mass., uses a chicken coop which he has "made for many years and has not yet found anything of the kind that is as well liked." He sends a sketch, from which the engraving is made. An ordinary drygoods box is used. To the open end of this box a frame of lath is fastened, thus making a run or yard for the chickens when the box is placed upon the ground, as shown in the engraving. The box furnishes a comfortable place for the



BOX AND FRAME CHICKEN COOP.

hen and chickens during stormy weather, an escape from the hot sun, etc. When not in use the lath frame can be taken from the box, its three sides and end separated, and stored away for use another season.

A Rat and Mouse Trap.

The accompanying engravings, made from sketches sent by "G. W. O," Harmony Grove, Pa., show a trap for catching rats and

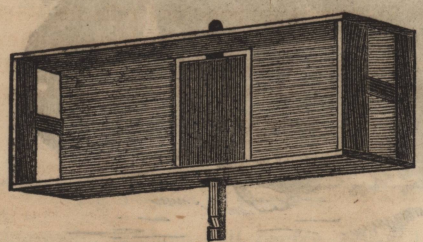


Fig. 1.—BOTTOM OF MOUSE TRAP.

mice. It consists of a long narrow box with the top and lower part of the ends removed. A square piece is cut out of the bottom near the middle, which becomes the "pan" of the trigger of the dead-fall, shown in figure 1. A heavy board is made to fit the interior of the box closely, and an upright piece is fastened to it at the central point. This standard is connected with the trigger as shown in figure 2. The trap is set in the path of the vermin, and as they pass over

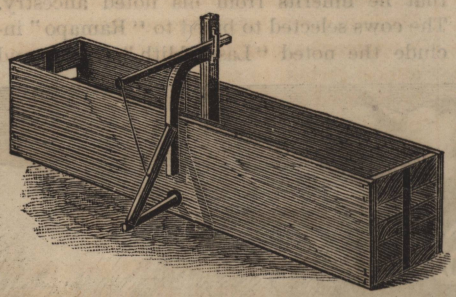


Fig. 2.—A BOX MOUSE TRAP.

the "pan," in the center of the bottom, the trap is sprung, and the heavy board falls and does its work effectually. This trap can be easily and quickly made by almost any one. In using a trap of this kind, it should be placed in the run of the animals, with the board that serves as a dead-fall propped up. After a few days, when the rats have become accustomed to it, and pass through it freely, remove the props and set the trap for them.

Among the Farmers.—No. 63.

BY ONE OF THEM.

Of all our domestic animals none, in my opinion, are more generally neglected than

Farm Dogs.

On most farms they are ill-trained nuisances. A good dog is to me invaluable. I do not regard him as much of a safeguard against systematic or "professional" robbers, for the best dog in the world will yield to the influences of the other sex, and be by this means enticed away from his charge long enough for the house to be entered and plundered; but tramps, hen-roost thieves, and all of that class are sure to keep at a respectful distance from a large and powerful dog.

A sonorous bark is one of his grand possessions. I love to hear a dog's bark fairly wake the echoes of the hills. It may wake your guests too, but the family will soon get used to it, and whoever has the responsibility of the house on his mind will wake, listen a minute, and determine by the tone whether the bark means a half welcome to a late returning hired man, or that some one coming toward the house is thus warned to keep off if he has no business. It may mean to sound an alarm of danger, and is accompanied by an under tone of anger, showing the immediate presence of a real foe; or the bark is only a sort of watchman's call, as policemen "sound their locusts," on the curb stones, or, in European cities, sing out their hourly hail. Whatever it means, it is an assurance of vigilance, and so far, of safety. Of all the "voices of the night," none is so pleasant, none breaks upon the stillness with so friendly a tone, and none so lulls to sleep as the bark of a dog.

If an owl hoots we fear for the hen-roost; if a cock crows, we wonder if it is morning; if a fox barks, we get up, worry about the turkey-hen sitting in the meadow, and whistling for the dog start him off to chase the intruder away.

The Training of a Dog

should begin soon after birth, and be finished before he is much over two years' old. A dog who changes his owner after he is two years old is never the companion and friend that he is if trained and fed by him who is to be his life-long master. During his period of training he should have little to do with other dogs. He naturally, or by second nature, prefers man's companionship, and should have all his enjoyment when with his master or the family. Petting, approbation, and perhaps tit-bits, should reward well-doing during his lessons, and the reward should follow at once upon the deed. In the same way disapprobation and light punishment should follow upon remissness. Severe punishment cowes a young dog and should never be resorted to, except perhaps for "turning" upon his master, or biting one of the family—then the lesson, never to do so again, must be prompt and decisive. After a dog is once so trained as to thoroughly comprehend an order, even then disobedience, though very persistent, should not be severely punished until after long and patient efforts with every kind of mild treatment fails.

Dogs may be so trained as to have every particle of pluck taken out of them, thrashed and cowed, and made to do every thing from fear of the lash, to follow at the heel, to be as cringing and subservient under the master's eye as slaves—and yet give them a chance and they will show the treachery and ferocity of wolves. The very lash that makes a dog cringe and crouch and obey under protest, stirs in him and trains in him fierceness and cruelty and hate, instead of the love, fidelity and kindly tempers, which should bear sway with every household dog.

It is just the same with dogs as it is with children—cowards are cruel and treacherous the world over. A passionate, cowardly father trains up cowardly, mean-spirited sons, and wolfish, treacherous dogs, and does not know why this is so.

As to Kinds of Dogs,

I prefer greatly those which are valued for their intelligence. Our house-guard is a cross between a St. Bernard and a Scotch Colley. He is a noble fellow, very handsome, marked like the St. Bernard, and of nearly the size of that breed, with the coat and face of the Colley, and with the docility and intelligence of both breeds. He was nearly three years old before he manifested much affection. Now he is eight, and a more affectionate creature, or one more solicitious to obey orders and do as he is told, never lived. His size makes him the terror of tramps, and of others too, particularly of that class of society whose fondness for chicken makes them indifferent to claims of ownership. There is an advantage in crossing certain breeds that cross well. With two breeds of dogs that have been for years reared for intelligent, faithful service, these qualities may be expected to prevail in a hightened degree in the offspring of a cross, but no doubt, as in other crosses, not in the progeny when both parents are cross-bloods. The result of such breeding is to form curs and mongrels, without uniformity of either physical, intellectual, or *moral* characteristics. In ill-bred dogs no trait is more common than a reversion, in a Darwinian sense, to a wolfish treachery, which make them unsafe to have around.

This leads me to think of an interesting conversation that I recently had in regard to

Polled Angus Durham Cattle.

My friend, Mr. Thos. R. Clark, of New York City, showed me, with pardonable pride, an article in the Chicago "Drovers' Journal," praising greatly a lot of 36 head of Polled Angus half-blood steers, of his breed-

ing, which had been sold in the Chicago stock-yards and shipped thence to New York. It seems this was the first lot of Polled beef cattle ever offered in any American market. Mr. Clark's farm is at Victoria, Kansas, where he was associated with the founder of that English colony, the late George Grant. At Mr. Grant's death, Mr. Clark bought his Polled Angus bull, an imported animal of rare excellence, and has used him and his progeny from that time on upon grade Shorthorn cows, with marked success.

Eight years ago the herd was begun by the selection of the best Cherokee heifers that could be bought. These were round-barrelled and neat every way, close made and fine boxed, none of them being loose or coarse. They were bred to good Shorthorn and Angus bulls, and their female progeny of several generations formed the herd as it now exists—as a rule admirably formed cows, good handlers in every way, and *hornless*.

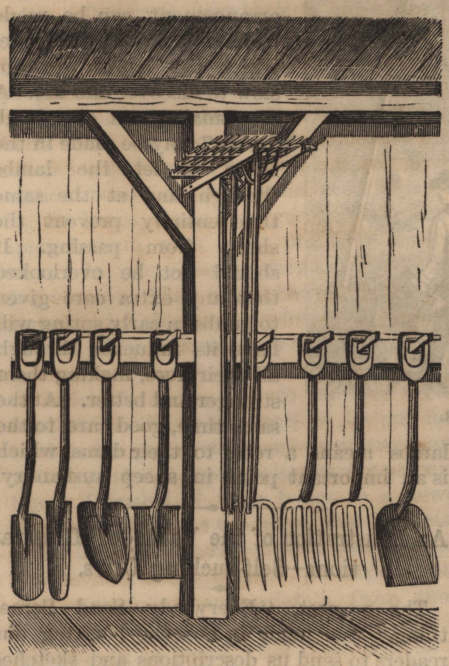
It is now at least ten years since Mr. A. B. Allen and myself, writing independently, but after consultation, and from purely disinterested motives, began to advocate Polled bulls for use on the plains and in Texas, the argument being that they were among the best known breeds of beef cattle; that having no horns they would be less dangerous for men to handle, and for horses to be among, and besides, less likely to hurt one another, both at pasture and crowded upon the cars, and having less fear of one another, could be moved with less worry and less shrinkage. These beautiful cattle are the best demonstration that could be wished for of the correctness of these views. Mr. F. Joseph, the drover who handled them in the New York Market, in a letter to the editor of the before-mentioned journal, states that these steers were as nice as any ever killed in this city of their weight. "The beef was uniform—one steer like the other, and as white as marble." They averaged alive 1,340 pounds each, and dressed 62 pounds to the 100. They averaged also 140 pounds of fat and 106 pounds of hide each, making the useful portion of each steer 1,076 pounds, or over 80 per cent of the live weight. Besides this the quality of the beef was of the best.

Now, these steers were larger than ordinary pure Angus steers would have been. They had not had a first-rate chance, or rather Mr. Clark sold them as yearlings, and though well cared for they had not been forced at all. They combined the good qualities of three breeds. The Cherokees could give them little that is valuable, besides hardiness. The Shorthorns or Durhams, as they are popularly called, gave size, early maturity, and fattening tendencies, while the Angus cross improved the "quality," in every way gave the Angus style (depth and roundness of barrel, well ribbed back, and in general breadth and squareness of outline which is remarkable), and made them hornless.

Mr. Clark has some 500 or more of these cows, of which he annually sells the steer calves, at very good prices, for other farmers to raise and fatten. He calls them "Angus-Durhams," as indeed they are, but he calls them a *breed*, or the beginning of a breed, which I hold they are not, and never should be. Their superior qualities are in a great degree owing to their being cross breeds—that is, the progeny of pure bulls of one breed (Angus), on nearly pure cows of another (Durhams). Thus, according to law, he might expect the combined excellencies of both breeds, and this he obtains. Now, if he breeds Angus-Durham bulls upon Angus-Durham cows, long suppressed—"bred out"—tendencies, qualities and "points" will be almost certain to appear, the new breed will be reduced in size, in constitution; they will not be so good feeders, as their ancestors, and their proportions will not be so excellent.

A Place for Farm Tools.

In the February number we gave an illustration of "a portion of a well-arranged Tool-house." In it the forks, shovels, etc., are inverted, and stand in holes bored in side shelves. The accompanying engraving shows another portion of a tool-house arranged for



PORTION OF A TOOL HOUSE.

such tools as can not be set in holes. The short, or D-handled shovels, forks, scoops, etc., are hung by their handles to stout pins, driven in at frequent intervals along the scantling frame-work of the side of the house. Two long, stout pins are fastened on opposite sides and near the top of one of the posts, for the safe keeping of wooden hand rakes, etc. Pins may be placed elsewhere.

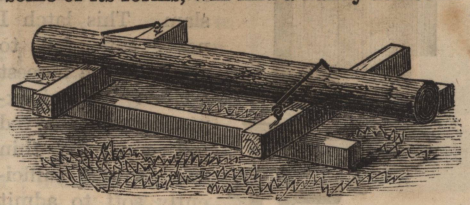
Close-Breeding—Is it Injurious?—Close-breeding is the coupling of those animals that are closely related to each other. The Jersey bull, "Mercury"—a portrait and account of which was given last November—is a son of "Alphea" by her brother, "Jupiter." This is a good illustration of very close-breeding. Close-breeding is a means of perpetuating those qualities that are common to the animals coupled. If good points predominate in the animals, close-breeding will tend to fix them; if bad qualities are common to the animals, they are quite sure to be found in the offspring. In itself, there is nothing injurious in close-breeding. If the breeder starts with excellent animals, according to the general law of: "Like produces Like," excellent animals will be the result, with the good points more firmly fixed. It is in this way that many excellent strains or families have been built up. Under ordinary conditions of the animals, and by unskilled men, close-breeding is not to be recommended.

"A Live Harrow."

"D. S., Jr.," Preston Co., West Va., has certainly a right to be heard, for he not only claims that he "has been a subscriber for 30 years," but he moreover claims that we shall regard him "as a life-long subscriber," for the reason that in each one of these many years he has "always got his money back." After this pleasantry, we are prepared to find that the outlines of his "Live Harrow," which he has not patented, but which he has found of great service in his farm operations, are contained "within a lot of salt-hungry sheep." Among his other reasons for his faith in their utility, he cites the following: "I had at one time a 4-acre lot of new ground that I wished to get into grass as a permanent pasture. The lot was literally covered with stumps and boulders, but with a one-horse shovel-plow, I managed to scratch all the ground that was 'come-at-able,' sowed it to wheat and grass. I then had about two dozen head of sheep, and having first dropped a small quantity of salt, at intervals of about two rods, all over the field, the sheep were let on. In less than half an hour, that field had been so thoroughly trampled over by the sheep that scarcely a grain of wheat could be seen. The result was an excellent stand of wheat, and an equally good catch of grass. Encouraged by this success, our correspondent has tried the same "Live Harrow" upon ground free of stumps and stones, with most gratifying results. With regard to this kind of "harrow," he suggests that it should never be borrowed from a neighbor, but should "always be home-made," in other words, he would have the farmer raise his own sheep. He says: "In this mountain region, where land is cheap and productive, nothing pays so well as sheep." If this pleasant way of regarding a flock of sheep as a "Live Harrow" serves to call the attention of farmers in general to the profit that may result from the keeping of sheep, it will do good service. As workers of the ground, as cleaners of the land of weeds and brush of all sorts, sheep will earn their living. The spring lambs, for home use or market, and the fleeces, may be regarded as clear profit. In all localities where there are effective dog-laws, sheep may be made most important factors in the economy of even a small farm. Where there is no dog-law, the prospects of success are uncertain, and measures should be taken to suppress all the sheep-killing curs at once.

A Post Holder.

Those who use posts and rails for fencing, or even have only bar-posts to make, the rest of the fence being of the Virginia "snake" in some of its forms, will find a handy device in



A HOLDER FOR POSTS.

the post holder here presented. It consists of four pieces of timber—two long ones parallel upon the ground, and two shorter pieces resting upon those at right angles. These last pieces have a place cut out of the upper side for the post to fit into. A ring

staple, with a long iron hook, is fastened into one end of cross pieces, one upon the right, and the other upon the left side of the post, as shown in the engraving. After the post has been put into position, the hooks are turned upon it and driven into the upper side of the post, thus securing it firmly. The great difficulty in boring bar posts is in holding them from turning or twisting; by such a simple frame, with its hooks, this is overcome, and a man can do good work rapidly.

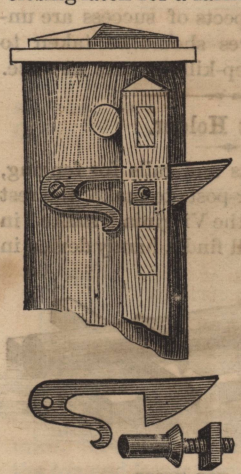
A Stump Puller.

We have recently published a number of stump pullers, but still receive new devices for facilitating the important and by no means

PULLING STUMPS WITH LOG AND LEVER.

easy work of clearing the land of stumps. "A. B. K.," Porter Co., Ind., sends a sketch from which the engraving has been made. A stout lever, 8 or 10 feet long, is set up by the stump, and the foot chained fast to it. A chain being fastened to the upper end of the lever is carried to a log placed 10 or 12 feet from the stump. The log prevents the chain from swinging up and hurting the horses. A wagon may be used in place of the log by loading the rear end with stones, and hitching the chain to the hind axletree. Care must be taken to keep the team on a straight line with the chain, or the wagon will be upset.

A Self-Closing Gate Latch.—"R. W.," writes: "I enclose a sketch of a self-closing latch for a farm gate, that I have contrived and used for some years with satisfaction. Springs are unreliable, and often break, gravity does not act with sufficient promptness to secure a latch, that is weighted, from the recoil of a slam. This latch I never saw fail to catch in the fiercest "blow." It is inexpensive. The curved tail must be thin enough and sufficiently soft to admit of bending, either by a pair of large pincers or a hammer, just so as to adapt it to the passage of the pin bolted through the front style of the gate. As the gate closes the latch lifts and the tail-piece advances. The catch-pin cannot possibly move out unless the whole end of the gate moves up and forward." [The latch, catch-pin and position of all the parts are sufficiently explained in the accompanying engraving.—ED.]



A SPRING GATE LATCH.

Management of Lambs in Spring.

As a rule it is best to begin to wean lambs as soon as they can be tempted to eat—when four or five weeks old. A separate enclosure should be made for them, to which the sheep cannot gain access. This may be an adjoining yard, and in it place a long trough upon or near the ground, in which bran and oatmeal should be scattered. The practice of feeding the lambs should be continued after the ewes are turned out to pasture, and if they can have the exclusive run of a part of the pasture it is all the better for them. Such an arrangement can be made by having gaps in the fence, which the lambs are not slow to discover and use. A few small gates or "lamb creeps" may be made in the fence to let the lambs through, and at the same time entirely prevent the sheep from passing. It should not be overlooked that any extra care given to lambs in early spring will have its influence through all their lives, making them stronger and better. At the same time, good care to the lambs means a relief to their dams, which is an important point in sheep husbandry.

An Illustration of the Value of Illustrations—Self-Sucking Cows.

The request, "Everybody Send Something," was made in February, asking our readers to send us descriptions and sketches of any labor-saving devices, contrivances, etc., for the benefit of many others. To illustrate the matter we described a simple device for stopping cows from drawing their own milk. "It was merely a short bit of iron pipe—a piece of gas-pipe open at the ends.... put across the mouth of the cow, and the two ends fastened to the horns with a stout string, etc.".... It would seem as if this simple device was there so fully described, that an engraving of it was unnecessary to make it any clearer. But from our letters it is very evident that the *gas-pipe prevention* is new to many, and imperfectly understood. "Please send me the number that has the description how to stop a cow from drawing her own milk, with a piece of iron pipe." Evidently this was written by one who had read "Everybody Send Something," and wishes the engraving rather than the description of the device. This is but one of many examples of the great value of an engraving over mere words in conveying ideas. The space occupied by a single well-executed illustration may give at once more real, accurate information than five times the same space in print. We request those intending to send us information about some device, to keep in mind this fact, and, so far as possible, make sketches, even of the roughest kind, to accompany the description. It is gratifying to note that many have taken the hint and are sending sketches of farm and garden implements, household conveniences, etc. If all are not thanked individually by letter, it is for lack of time. To those who wish to learn more of the device for the sucking cow, we give the accompanying illustrations. Do they need any further description?

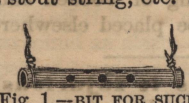


Fig. 1.—BIT FOR SUCKING COW.

Fig. 2.—BIT IN POSITION.

A Mill for Hen Manure.

Mr. B. O. Beitel, Northampton Co., Pa., has a useful home-made machine for bringing hen manure into a form to be used, which he describes as follows: "I constructed a box

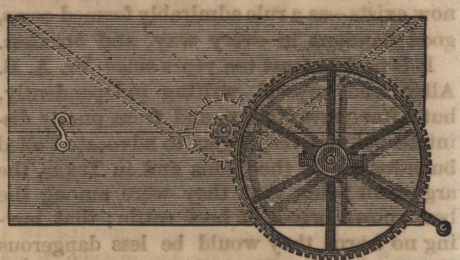


Fig. 1.—SIDE VIEW OF MANURE MILL.

2 feet long, 8 inches wide, and 12 inches high. A cog-wheel and pinion—the gearing of an old fanning mill—was purchased for a trifle. I made a shaft of ¾-inch iron, and keyed it on the pinion. A cylinder of wood about 3 inches in diameter by 8 inches long was turned out and spikes, or large nails, driven into its circumference. This cylinder was put into the box, the sides being cut down to admit the shaft." The construction of the mill is shown in side view in figure 1, and a view looking down into the hopper is given in figure 2. Mr. B. writes: "This machine is of great value, as it breaks up the hard lumps

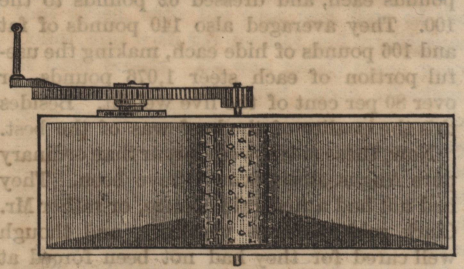


Fig. 2.—HOPPER AND GRINDER OF THE MILL.

in the hen manure, which otherwise would not be available in applying it. I take the manure from the coops at frequent intervals, put it in barrels, and keep it in a dry place. Towards spring I take it out, and run it through the machine, mix it with equal parts of road dust, and apply to the corn in the hill. I hope this device will be of use to those who, from the difficulty of bringing their hen manure into a proper condition to use upon their fields, have let it go entirely to waste."

Colorado Potato Beetle.—The wide experience that the American farmers have had with this pest should teach them that much depends upon the prompt and early application of the remedy. The best method of using Paris Green, or London Purple, is with water. The ways of applying this are various, but none better than with a sprinkling pot with a fine rose, keeping it well stirred.

A Cheap Home-Made Pump.

A pump made out of boards may be used for drawing water from cisterns, or liquid manure out of tanks, etc. Mr. Wm. J. Corlett, Westchester Co., N. Y., sends a description of a home-made pump which he has used for some time. The tube part of it is made of 7/8-inch pine; two of the four strips being 4 3/4 inches wide, and the others 3 inches, forming a box 3 inches square when nailed together. The tube or box should be long enough to reach about 2 feet above the top of the cistern. A valve is needed in the lower end, and is made of a piece of hard-wood of the size to fit into the tube. A 2-inch hole is bored in the center, and a piece of leather tacked on the top to cover it. The leather has a piece of wood fastened to it upon the upper side as shown in figure 1. The "plunger" is made from a 7/8-inch pine strip, 2 7/8 inches wide, and about one foot longer than the tube. Bevel the lower end of it and nail a strip on each side, *b*, one foot long, and one foot from the bottom, to make the plunger run steady. A piece of stout leather is fastened on the end, *a*, to fit closely in the tube. For the spout, a hole is cut in one side of the tube near the top, and an outlet made by folding a piece of tin 12 inches long, 9 inches wide, as indicated in figure 3. Bend the sides up at the dotted lines, the short piece at the end being turned down and nailed securely to the tube below the hole.

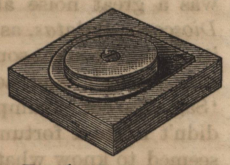


Fig. 1.—THE VALVE.

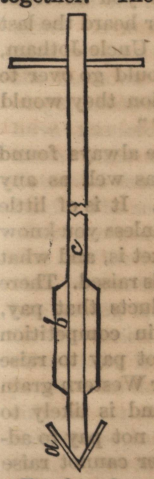


Fig. 2.—THE PLUNGER.

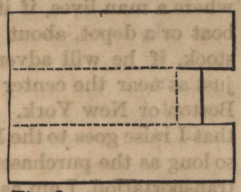


Fig. 3.—TIN FOR SPOUT.

A Stable Scraper.

A strip of heavy India rubber, two pieces of inch-board, four small bolts, and a hard-wood handle, constitute the materials necessary to make a scraper, as shown in the engraving. The rubber is placed between the strips of board, with one edge extending an inch or so, and the whole securely fastened together by the four bolts. With the handle adjusted, the scraper is ready for use, and a very handy implement it will be found for cleaning the floors of barns, stables, etc.

A GOOD STABLE SCRAPER.

Under Draining.—At no time of the year are the effects of good under draining as apparent as now. Where the soil was before wet and unfit for the plow, grain is being sown in a warm and finely pulverized seed bed. But the effects of drains are felt all through the year, though perhaps in not so striking a manner as in early spring. They lessen injurious effects of drouth, and more freely admit the atmosphere to the soil, thus accelerating the disintegration of minerals and other fertilizing elements, organic matter, etc. As rains fall, they pass into the porous soil, feed the roots, etc., instead of forming in pools upon the surface, or running off into the streams, as they do on undrained soil. A well drained soil is easier to work, and will yield a larger crop for the same amount of labor. Quicker returns are obtained from any fertilizers applied to a mellow soil than when put upon one that is filled with clods.

How to use Bones.

Plant food is concentrated in bones, and most gardeners, who make a business of raising fruits and vegetables, appreciate their value. The great drawback to their use is the difficulty of reducing them to sufficient fineness, so that plants may immediately appropriate them. If bone mills were more common, and the adulteration of the ground bone were less frequent, this excellent fertilizer would be more commonly used. Even without bone mills there is no need of wasting the bones, if one has a garden. We have applied them with great profit in several ways. In tree planting they are almost indespensable. They can be had of village boys generally for about twenty-five to fifty cents a barrel. They pick them up about the streets, gardens, and slaughter-houses, the remnants of butcher's meats sold to families. This kind of bone is fine enough to be put into borders for grape vines and fruit trees, and to bury under old trees, without any preparation. A bushel of these bones to a newly planted tree is none too much, and one may safely plant five bushels under a bearing apple or pear tree, or grape vine. So large results will not follow immediately from these coarse pieces as from the ground article, or from superphosphate. But there will be in the soil a supply of food for many years to come, and the roots will appropriate it as they have need. The fine rootlets will seek the bones, as eagerly as they seek water in a tile drain. We have frequently taken up grape vines planted in this way, and found the whole mass of bone, once solid, penetrated with fine roots. We doubt if any investment in fertilizers pays better than in these bones from butchers' meat, which are quite plentiful in all our villages.—Another method of using them is with the preparation of the hammer or stone sledge. This requires some expenditure of muscle or of money. The common bones are tough, and require heavy blows to crush them. Parts will be crushed quite fine and some will remain in inch pieces. They may be applied to the soil for all ordinary crops, especially for turnips, in this partly broken state, with profit. It is still better, however, to reduce them to a finer state, by fermentation in a compost heap, or by treating with wood ashes. If they are put into a cask and mixed with alternate layers of wood ashes, and kept moist, they will soon go to pieces, and the fine mixture will have a large accession of potash and be made more valuable and better adapted to crops that want a good deal of potash. If wood ashes are not convenient, the bones may be fermented in a compost heap with good garden soil. Put them into any fermenting mass of vegetable or animal matter, and the bones will add to the heat and become very fine. After the fermentation is over, the whole mass should be shovelled over, and intimately mixed, and it may be spread broadcast or put in the hill as a concentrated manure. This way is good enough, though it requires more time than the reduction of bone by sulphuric acid, which costs money, and requires more careful handling. We have used bones in all these methods, with great profit, for thirty years, and expect to use them while we eat the fruits of the garden. Never throw away any of the bones.

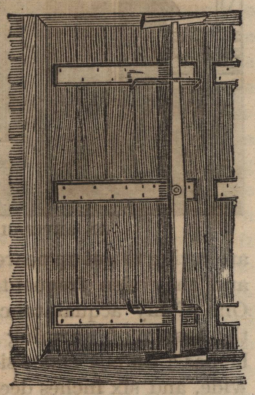
A Fender or Safeguard for a Pigpen.

In the "Suggestions of and for the Season" for March we mentioned the importance of a fender in the pen of a breeding sow, to prevent her from lying upon and killing the pigs. The accompanying engraving will make the matter plain. The fender or guard consists of a board or scantling fastened upon that side of the pen where the bed is located. It needs to be high enough above the floor for the pigs to pass under it, and at the same time extend out far enough to prevent the sow from lying close to the wall of the pen. If the pigs are between the sow and the wall, the fender permits them to escape. It is well to make this fender when the pen is built; being permanent, it will be very much stronger than a temporary one; it will then always be in place and is not in the way.

A FENDER FOR PIGPEN.

A Barn Door Fastener.

"J. M. B.," Cecil Co., Md., draws and describes a fastening used on one of his double barn doors. He writes: "Most barn doors of this sort are fastened by upright bars, with slots cut in the floor. These slots fill with dust, ice, etc., and often make it difficult to fasten the door. Hence came the idea of substituting hard-wood wedges for the slots, one over the door and the other on the floor, the points being placed in opposite directions, so that the ends of the bar may be brought upon them and the bar driven securely into an upright position." Mr.

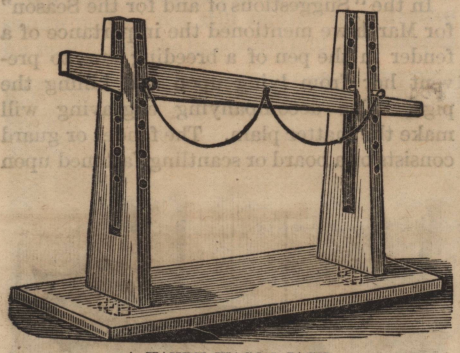


FASTENER FOR BARN DOOR.

B. has added another important feature to his door. In the ordinary fastening with a bar, that may swing out horizontally and be in the way, and do injury by hitting persons passing near the swinging door. To avoid this, two pieces of iron are bent and placed over the bar above and below the middle bolt. These "slots" are long enough to allow the bar to swing enough to clear the wedges and no more. The door, with the improvements, is shown in the engraving.

Another Wagon Jack.

Mr. "B. F. P.," Southboro, Mass., has used a style of Jack for 14 years, with so much satisfaction, that he sends a description of it

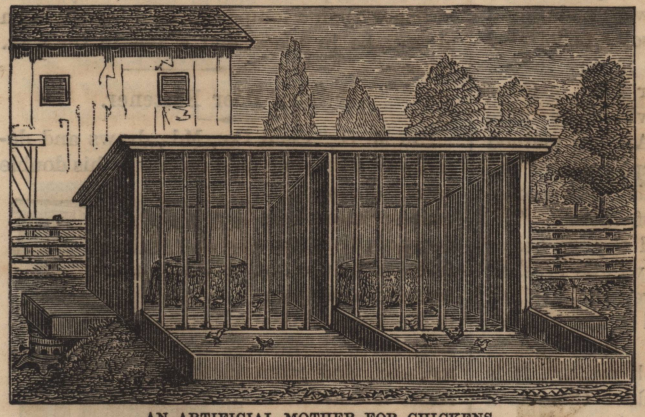


A HANDY WAGON JACK.

for our readers: "It costs very little; any one can make it; will lift any reasonable weight; stores in a small space, and is very easily carried from place to place with one hand, with wrench and box of axle grease on the bottom piece. These are enough to call it 'Ne Plus Ultra.'" The Jack thus described is shown in the accompanying engraving.

An Artificial "Mother" for Chickens.

A drawing of a "Mother" for chickens, from which our engraving is made, was sent by Mr. J. A. Bailey, Denver Co., Col. He writes: "I have often heard of artificial mothers for young chicks, nearly all of them give heat from above by means of a vessel filled with hot water. Complaints from those who have used them have been numerous; some of the chicks are crushed by others that

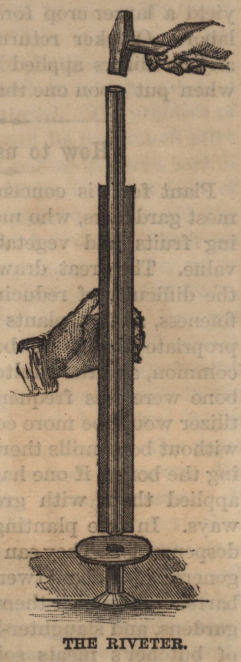


AN ARTIFICIAL MOTHER FOR CHICKENS.

are trying to get up nearer the source of heat, and they also frequently die of diarrhœa. One of my acquaintances has improved on the system of warming chicks in this way: he has a tin box about six feet long by a foot wide, and six inches deep; this is set in the ground. Under one end of the box he has a coal-oil stove for heating the water with which the box is filled. Only a small amount of heat is necessary to keep the box warm for its entire length. Over this box, and in each coop, he has a simple "mother," made of boards, with a fringe of cloth suspended on the edge. As a result, the chicks, instead of climbing over each other, settle down on the warm cover of the box." The construction is easily understood from the engraving.

A New Riveting Set.

Mr. Edward E. Eyles, Allegheny Co., Pa., sends a sketch of a riveting set, and describes it as follows: "A piece of gas pipe, 3½ inches long, is obtained, and also a solid steel rod, 4½ inches long, that will fit nicely within the gas pipe, when the 'set' is ready for use. Put the end of the gas pipe on the bar, holding it with the left hand, and strike the extending steel rod with a hammer in the right hand." The accompanying illustration shows the 'riveter' and the manner of holding it when in use. It will doubtless be found very convenient to many who have much riveting to do.



THE RIVETER.

Tim Bunker on Advertising.

MR. EDITOR:—We have had up the question in our Farmer's Club, "Does it it pay a farmer to advertise?" and it has brought out some rather curious experiences. Mr. Spooner, who sticks to the Club about as close as he does to his text in the pulpit, opened the question. He said, in discussing this question, a good deal depends upon who the farmer is, what he has to advertise, and where he advertises. A good many farmers do not look far beyond their own doors for a market for everthing they have to sell. They calculate to raise enough to eat and drink, and want to barter enough at the store to pay for groceries, clothes, and raise a little money to pay the hired man, interest money, and taxes. If they brought the year round square, they were pretty well satisfied. Now, unless a farmer has some ambition to get ahead in life, to keep out of debt, and have a bank account, it is no use to advertise. If he has nothing but wood to sell, for fuel, and only one market to which he can haul it, it is waste of printer's ink to advertise. The first requisite in advertising, is to have something in considerable quantity to sell, and the more rare and better the article, the better it will pay to make your goods known.

Uncle Jotham Sparrowgrass, who lived in his early days over on the east end of Long Island, and had some experience there which he is fond of quoting, said, "I don't like to differ from Mr. Spooner on anything, but my experience in advertising rare things differs considerable from his, and I can't agree with him in this. About thirty years ago there was a great noise about Chinese Yam, or *Dioscorea Batatas*, as the nurserymen called it. Well, I bought some of them, raised them easy enough, and advertised them in the 'Sag Harbor Trumpet' all one season. I didn't make a fortune that year. Nobody seemed to know what the thing was, how to raise it, or whether it was good for anything. Arter you'd raised it, I could hardly give 'em away. So you see, unless folks know something about the crop you raise, and know enough to want it, the more you advertise the worse you are off. I never heard the last of them Chinese Yams," said Uncle Jotham, as he sat down, "and if I should go over to Southold now, the first question they would ask would be, 'How's Yams?'"

Deacon Smith said, "I have always found that advertising paid about as well as any other investment in farming. It is of little use to raise crops for market unless you know what the demand of the market is, and what is likely to pay fairly when it is raised. There is a wide range of farm products that pay, outside of those that come in competition with the prairies. It does not pay to raise grain beyond home wants, for Western grain is in every Eastern market, and is likely to stay there. Of course it does not pay to advertise anything that a farmer cannot raise with profit. But the finished products of the farm, fine fruits and vegetables, gilt-edged butter, thoroughbred stock, horses, cattle, sheep, swine, poultry, it pays to raise, and to advertise. And it does not make much difference where a man lives, if it is only near a steamboat or a depot, about the selling of food or stock, if he will advertise. Hookertown is just as near the center of profitable trade as Boston or New York. Some kinds of stock that I raise goes to the Mississippi Valley, and so long as the purchaser pays the expense of transportation, I am as well paid as if I sold in Shadtown. Advertising gives me a hundred customers where I should find only one, if I did not use printer's ink."

Jake Frink said he never made a fool of himself but once, and that was when he advertised "Black Cats For Sail" in the "Hookertown Gazette." He said, "I read a piece in the paper once, that black cats' skins were worth a dollar a piece, as many as you could bring on. If that was the case, I thought I would go to raisin' on 'em. I kalculated that I could have a hundred breedin' cats about my old barn, and they would easily bring tew litters in a year, and I could raise a thousand black cats. Polly could tend 'em, you know, and the cats could get the most of their living at the slaughter-house close by. Polly was in for the job, and to make the market sure I advertised. I did not plow so much as common that year, 'cause I felt sure of a thousand dollars in the fall, when the cats' skins were sold. The cats bred well enough, but some Jacob seemed to have been round, and they came out ringed, streaked and speckled, and about as many colors, as kittens. I stopped the advertisement as soon as I could, but the scrape cost me twenty dollars, and before the few black kittens were half grown, the man that wanted the skins failed in business, and Jake Frink began to git lite. I have not advertised enny, sense."

This chapter from the experience of Hook-

ertown ought to be profitable to some of your readers. I suppose it is a fact that not one farmer in fifty ever thinks of advertising any thing that he raises to sell. He might advertise his farm, if he wanted to sell it, but he is satisfied to sell all products at the most convenient market, at the best price he can get. Many of those who do advertise patronize the nearest paper, without much regard to its circulation, or the wants of its readers. Advertising in the right paper is quite as important as advertising at all. Jake Frink's venture in the Hookertown "Gazette" did not pay, for this, among other reasons, that no man in this region wanted black cat skins. It is of little use to advertise farm products in a paper that makes a specialty of the fashions, of tales and romance, of theology, medicine, or law. These papers may have numerous readers, but very few of them want a Jersey bull, Toulouse geese, Cotswold sheep, or thoroughbred stock of any kind. The sectarian and religious papers are often recommended for their large circulation and the reliable character of the people that patronize them. So far as they circulate among farmers, they are a good medium for advertising. But a large part of their circulation is in cities and villages, among people who do not cultivate the soil. Agricultural papers circulate almost exclusively among people who are interested in cultivation. An advertisement of thoroughbred stock, or of any kind of vegetable seed, or tuber of extra quality, is sure to find interested readers and purchasers. Every dollar paid for advertising a really good article in the farmer's line, in agricultural papers, is sure to come back again, and it generally comes early. Fine stock raised in New England is sent by express, or by rail, as freight, all over the country, and into the British Provinces, and even across the Atlantic. The gobble of Hookertown turkeys is heard today in California, and in Scotland, across the sea. Deacon Smith knows how to put his goods on the market.

One thing more about farmers advertising. When you begin to raise a specialty, no matter what the good thing may be—thoroughbred stock, Suffolks, Berkshires, Jerseys, Devons, gilt-edged butter, fine fruit, maple sugar, keep up its quality and keep it in the papers. Many are faint-hearted in their ventures, and fail for want of pluck. If you are sure you have a good thing, you are certain to win by sticking to it, and keeping it before the public. Deacon Smith says he is getting orders from advertisements sent out many years ago. The reputation of a good thing spreads year by year, as long as it is kept before the people; customers come from unexpected quarters, and the skillful advertiser generally has to answer letters of inquiry, long after his available stock is sold. A paper like the *American Agriculturist* goes to all parts of the country, and to all civilized lands. It is read when fresh from the Post-office. It is put upon file, bound up, advertisements and all, consulted for special information, and read again, rainy days and winter evenings, by a great company of cultivators, and live men and women. If you have got a good thing to sell, advertise here. But please don't come here with humbugs, or black cat skins.

Hookertown, Ct., March 10, 1881. } Yours to command, TIMOTHY BUNKER, Esq.

A Bail for a Water Jug.

Water will keep cool much longer in an earthern or "stone" jar than in a tin or wooden vessel, and for this reason a jug or crock is very generally used for holding drinking water in the field. Mr. W. H. McDonough, Allegheny Co., Pa., sends a sketch of a home-made handle for an "earthen bucket." A piece of stout wire is selected to go around the crock just below the "lip" or flaring top. Loops or "ears" of small wire are put on this as shown in figure 1. A bail from an old pail can be fitted into the ears. This recalls a case which came under notice not long ago, in which a jug, having lost its handle, was provided with a substitute in the form of a bail, as follows: Two wire "rings" were made, one to go below the largest part of the jug, and the other and smaller one near the neck. These were held together by four wires passing between them. "Ears" were put on opposite sides of the upper ring, and a stout wire bail attached; this bail was provided with a wooden handle through which the wire passed. The jug thus fitted is shown in figure 2. From experience we can say it is more convenient to carry than a jug with the ordinary, one-sided handle.

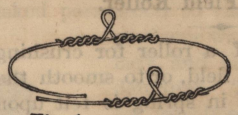


Fig. 1.—WIRE WITH "EARS."

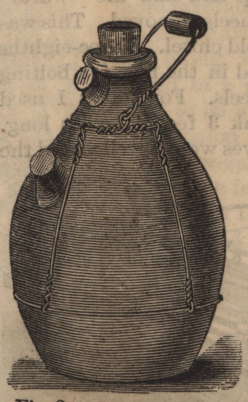
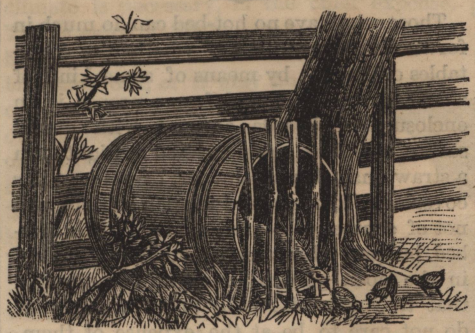


Fig. 2.—JUG WITH BAIL.

Barrel Chicken-Coop.

Any old barrel, that would otherwise be thrown away, may be put to good use in making a comfortable place for a hen and chickens. Brace the barrel on the two sides with bricks or stones to keep it from rolling; raise the rear enough to bring the lower edge of the open end close to the ground; drive a few stakes in front and the coop is complete. It is best to put the barrel near a fence, that it may be all the more secure and out of the way. We used to make nests for the turkeys in the same way, in out-of-the-way places, omitting the stakes, and putting in a good supply of straw to make the nest.

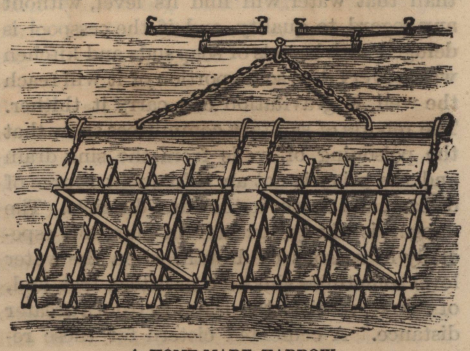


A BARREL CHICKEN-COOP.

New Use for Sawdust.—We hesitate in these days of wonders to assert that anything is impossible. Sawdust is now coming to the front and seems to possess elements of usefulness hitherto unsuspected. Sawdust brick, sawdust fence posts, sawdust door-frames, mouldings, etc., are beginning to appear, but the latest is the sawdust car wheel for railroad trains. These wheels, it is claimed, are superior in many ways to the ordinary ones of iron. The sawdust fills the space between the iron rim and hub.

A Useful Home-made Harrow.

There is no more important work upon the farm than harrowing, and many of our readers will be interested in the cheap home-made harrow here presented. It is engraved from a sketch sent by Mr. James Rice, Akron Co., Ill., who writes as follows: "I made this harrow four years ago, and it has done me great service. It consists of ten string-pieces, four cross-pieces, and a single long head-piece. Four short pieces of chain are needed, besides the farm log-chain, to which the whiffletrees are attached. The teeth are set 14 inches from each other, each way. The whole cost of my harrow was something less than five dollars, I doing my own wood-work."—This harrow will cover a strip 12 feet wide, and ought to have three horses, unless the team be an unusually strong one. The harrow can be made for 10 feet spread upon the same plan. But unless it is made to run diagonally, by having the attaching chains of unequal length, the teeth of each bar will follow each other in the same track.



A HOME-MADE HARROW.

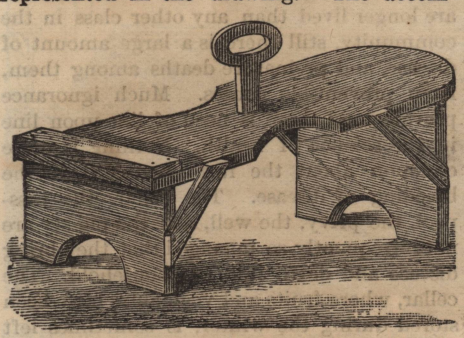
Breeding Disease.

Attention to sanitary matters upon the farm is of the utmost importance during the hot season, and they should be considered in time. Although statistics show that farmers are longer lived than any other class in the community, still there is a large amount of disease, and premature deaths among them, from preventible causes. Much ignorance prevails, and there is need of line upon line in the science of health. Nothing is more common about the farm house than the breeding of disease. The cellar, the cesspool, the privy, the well, and the pig-sty are not infrequently so managed that they bring disease and death into the household. The cellar, where fruits and vegetables have been stored during the winter, is sometimes left uncleaned and unventilated all through the summer, and the odors of rotten apples, decayed vegetables, unsavory meat barrels, and dead rats is diffused through all the house from cellar to garret. The family breathe the vitiated atmosphere by day and night, while they are in the house, and nothing but the out-of-door life most of them lead, saves them from sickness and death. We cannot have pure air in the house without a clean

cellar. Every particle of vegetable and animal matter should be removed, and the cellar windows be kept open from spring until freezing weather comes. There is a still greater peril to health in the drinking water used upon the farm. The well in itself may have an abundant supply of pure soft water, and yet be poisoned by filtration from the surface. It is desirable to have the well near the house, for convenience in furnishing water, and the cesspool and water closet near for convenient use. The possibility of drainage from these places into the well, does not seem to have entered the minds of house builders in past generations. The sink drain discharges, as a rule, only a few feet from the house, and not infrequently upon the surface, where all the foul water and much of the filth of the kitchen lies festering for months in the summer sun, polluting the atmosphere, and soaking away through a porous subsoil into the well water, twenty feet from the mouth of the well. Nothing is more certain than that water will find its level, without any regard to quality, and if the cesspool is deluged with barrels of soap suds and kitchen waste every day, some portion of it will reach the well, if gravitation can carry it thither. The reports of sanitary committees show that the poisoning of wells from the sink drain and the privy is not an infrequent source of disease, and death, in the rural districts. The danger is always greater in summer, especially in seasons of drouth, when the water level sometimes sinks ten or fifteen feet, and, of course, receives the drainage from a greater distance. A cemented cistern for these receptacles of filth will effectually guard the well against impurities, and prevent this source of disease. It will furnish, also, what is always wanted upon the farm, a valuable fertilizer, and pay a large interest on the investment. Pure air and water are the first essentials to health, and cheap at any price.

Another Milking Stool.

Mr. Jacob Seidel, Seward Co., Neb., writes, "In the January number of the *American Agriculturist* you picture a milking stool. We have been using a similar one which we think more simple and easier to carry. The drawing shows the whole thing. Inch-boards will do. The handle need not be as large as represented in the drawing." The accompanying engraving is made from the sketch sent by Mr. S., who omits giving the measures.



A MILKING STOOL.

Selecting Farm Stock.—If we were as careful in choosing our farm stock as in picking out the cloth for a coat or dress, better animals and more profit would be the result. The farmer should know what he wants in his animals, and select accordingly. Be not misled by appearances nor overruled by blind fancy or popular fashion in "points."

A Cheap Field Roller.

The importance of a roller for crushing the clods in a plowed field, or to smooth the surface of meadows in spring is felt upon every farm. Mr. Frank Riddle, Venango Co., Pa., gives his method of making a cheap and effective field roller as follows: "I first bought two sets of old mowing machine drive-wheels at the price of old iron, and took them to a blacksmith shop and had the "warts" on the face of the wheels removed. This was easily done with a cold chisel. Three-eighths inch holes were bored in the face for bolting the staves to the wheels. For staves I used $2^1/_2$ by $5^5/_8$ inch plank 3 feet 4 inches long. The edges of the staves were bevelled and the ends cut in to fit. When the staves were fitted I took a 4 by 4 scantling and ripped it diagonally, making triangular-shaped pieces, which were laid upon the face of the staves, as shown in figure 1. The bolts pass through both pieces, and are firmly fastened to the wheel. I used a $1^3/_8$-inch iron rod, each section being adjusted to revolve independently." The roller complete is shown in figure 2. A roller with the surface ridged as in the above, is preferred by many to a smooth one for cloddy or lumpy land, especially if a harrow is to follow the roller.

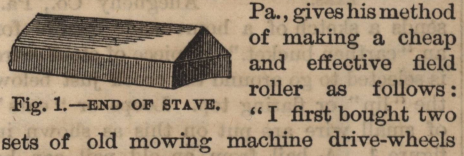


Fig. 1.—END OF STAVE.

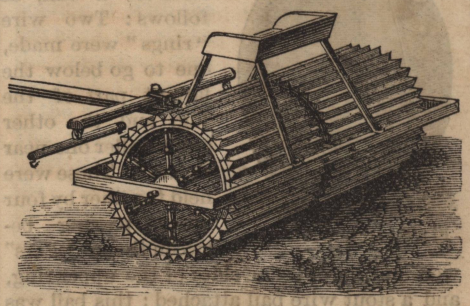


Fig. 2.—THE ROLLER FINISHED.

Substitutes for Glass in the Garden.

Those who have no hot-bed can do much in forwarding early plants, whether of vegetables or flowers, by means of some kind of a cold frame. The cold frame proper is an enclosure of boards covered with glazed sashes, and these again covered at night with a straw mat, board shutter, or some other covering. Plants raised in such a frame will not of course be so early as those in a hot-bed, but properly managed, much earlier than in the open garden. Many are so situated that they cannot readily procure sashes, or do not care to be at the expense of them. They can, nevertheless, gain something by using a frame covered with shutters of thin boards. These should be of a convenient size to handle readily. Make a frame of 6 or 8 inch wide boards, nailed to small posts set in the ground. It may be six feet wide, and as long as convenient. Make shutters of thin boards, battened on one side, and as long as the width of the frame; about four feet wide will be a convenient size for handling. Select a sunny locality for the frame, and one sheltered by a close fence or a building from the cold winds. Enrich the soil and prepare it thoroughly with the spade and rake. If the soil is still cold, expose it to the sun during the day and put on the shutters about three o'clock in the afternoon. After a few days the soil will be warmed and dryer; when it is in good condition sow the seeds, just as in an open bed. Continue to expose to the sun and close as before. After the plants are up, watering, thinning, etc., is needed, as if they were in the open ground. Plants in a frame so treated will be considerably ahead of those sown in an open bed. A great improvement on this, and the best substitute for glass, is to make frames of the size advised for the shutters, of stuff two inches wide and an inch thick, with two light strips running lengthwise. Cover them with cheap white sheeting tacked on, or better still, let the sheeting be hemmed at the ends, and furnished with rings at the corners and about a foot apart elsewhere; these rings are to be hooked over small nails, so placed in the frame as to stretch the cloth as tight as possible. The muslin is then to be coated with a varnish made as follows. Put into an iron vessel a quart of Linseed Oil, and add finely pulverized Sugar of Lead, 1 oz.; pulverized Rosin, 4 oz., heat over a gentle fire until these are thoroughly melted together and mixed. This is to be applied, while warm, with a brush, doing it on a clear day, and when dry give a second coat. When sashes like these are used, the rear end of the frame (that farthest from the sun) should be about two inches higher than the front, to allow the water from rains to pass off. With such sashes, the frames may be kept wholly or in part covered during chilly days. At night cover them with the shutters. Frames covered in this manner are also useful to hold and harden off plants that have been raised in hot beds. In using them, as with glass, care must be taken to open for airing, and not allow the interior to get so warm as to injure the plants, and when the weather is not too chilly to remove them altogether.

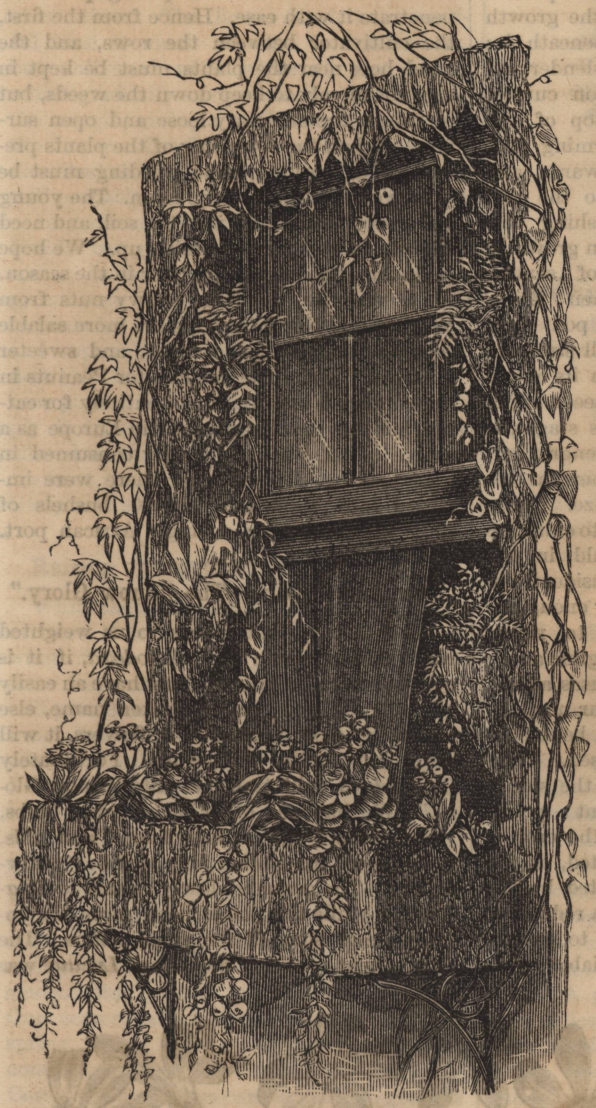
The Weight of Soils.—It is impossible to determine the exact weight of any soil, as it varies according to its porosity; amount of water contained; the per cent of sand, gravel, clay, etc., present. No one handful or bushel of soil from a field is identical with any or every other like quantity. The following figures are from Johnson's "How Crops Feed":

Dry sand weighs about	110	pounds	per	cubic foot.
Heavy clay " "	75	"	"	"
Half sand and clay "	96	"	"	"
Rich garden mould "	70	"	"	"
Peat "	30 to 50	"	"	"

A sandy soil which is spoken of as "light," is so because worked with greater ease than the "heavy" clay that weighs some 35 pounds less per cubic foot. "The resistance offered by soils in tillage is more the result of adhesiveness than of gravity." The Specific Gravity of a soil is its weight compared with the weight of an equal bulk of water. The water is taken as the standard of comparison, and its specific gravity (sp. gr.) is called one (1). A cubic foot of water weighs $62^1/_2$ pounds. By comparing the weight of various soils with this, their specific gravities are obtained. The sp. gr. of good agricultural soils is not far from 2.68, that is, such soils are two and sixty-eight hundreths times heavier than water. A cubic foot of it would weigh about $167^1/_2$ pounds.

Gardening without a Garden.

The love for plants and flowers is innate. It may not be, as would sometimes appear, the strongest in those whose purses are the shortest, but the efforts of those who strive to give expression to this love, are more striking because made under adverse circumstances. We look upon the fine garden of a man of wealth as a matter of course, but when we see the little garden of the farmer's wife or daughter, it at once interests us as an expression of that love for plants that will manifest itself in spite of all obstacles. Still more interesting is it, when obliged to pass through some of the densely populated quarters of the city, to look up to the fourth or fifth story windows of those human hives called "tenement houses," to see a window sill or shelf crowded with plants, and so bright and flourishing, that we do not notice that the gay geranium is in a "crock" that can no longer do service as a teapot, and that the other plants are in old fruit and tomato cans. Most touching, indeed, are these strivings for something beautiful amid squalid surroundings; they indicate that while the inmates may be poor, they are not degraded. There was, many years ago, on one of the avenues, a garden which we enjoyed visiting more than we did some much larger ones. On one of the avenues the lower story of a tenement house was extended to the rear 30 feet or more, to give room for a store. What could be seen from the street of the contents of the roof of this extension, was so attractive that after a while the writer, who passed it daily, searched for the gardener, and asked permission to visit the garden. The gardener was a very old German lady, and her assistant a robust daughter. This roof-garden had for its "borders" boxes from the neighboring stores, while its walks, to protect the roof, were of boards obtained by knocking apart large boxes. The border-boxes were painted a dull blackish green, and contained mostly annuals in variety and perfection of growth rarely seen under vastly more favorable conditions. There are many ardent lovers of flowers, living where they are deprived of a garden, who do not seem to be aware of how much gratification can be afforded by a window-garden of some kind. One of the features that strike a stranger in London, is the great number and beauty of the balcony gardens and window boxes. The culture of plants in pots in window gardening, however practicable in winter, is very difficult in summer, and especially so in our climate; the small masses of earth in porous pots dry out so rapidly that healthy growth is most difficult to secure. We are glad to see that window boxes of various kinds are offered by dealers, as it indicates a demand for such articles. But the great majority of window gardeners must rely upon their own ingenuity, and get along with the least possible expense. The box, as long as the width of the window, may be 8 or 10 inches wide, and of about the same hight; this will give a depth of soil of 6 or 8 inches, and it needs to be strong as the weight is considerable. Line the box with sheet zinc, or galvanized iron, which ever may be most readily done by the tinsmith; this lining, which in our climate is necessary, is the chief expense. The exterior of the box may be painted of some neutral brownish tint, or it may be covered with sheets of bark, or with some neat pattern of oil carpeting. The engraving from "Gardening Illustrated," a most popular weekly journal, by Mr. Wm. Robinson, of "The Garden," London, shows a style of window-box in use in English cities. The front and sides are covered with what is known there as "Virgin Cork." This, which appears to be cork-bark, too thin and poor for cutting into corks, is an admirable article for various horticultural uses, and we hope that our dealers may import it. Still it is of little consequence how the box is covered, if the two essential points in planting a window box are observed. To be effective from the outside, the planting should provide firstly, for climbers, to run up and over the windows, and secondly, for trailers, or plants that will hang over and fringe the whole front of the box with a green drapery. These, which are but little seen by the occupant of the room, are the most conspicuous to the passer-by. Among the plants best suited for draping the sides are the various trailing *Tradescantias*, which are abundant and cheap at the greenhouses; another useful plant is "Creeping Charlie," *Lysimachia nummularia*. Some of the small Lobelias are useful for this purpose, and many that are grown as climbers may be used as trailers. For climbing, to be trained by means of wires or cords over the window frames, and make a dense, quick-growing mass of green, against which flowers will show effectively, we know of nothing so useful as the so-called "Parlor or German Ivy," to be had readily at all greenhouses. Among annuals are the so-called "Cypress Vine" (*Ipomœa Quamoclit*), *Maurandia*, *Thunbergia alata*, the Nasturtiums (*Tropœolum*), especially (*T. peregrinum*) the "Canary-bird Flower," which, by its fine foliage, abundant flowers, and endurance of hot weather, is a most admirable plant. Having provided the climbers and trailers, the rest of the plants, which are to be seen mainly from within, may be annuals or ordinary bedding plants. Here the range is so large that the selection must be left to individual taste. If restricted to a single flower, we should, perhaps, choose one of the small-flowered single Petunias, like the brilliant "Countess of Ellesmere," a compact grower, which comes true from seed.



AN OUTSIDE WINDOW GARDEN.

The Medlar.

Whenever we receive an inquiry about the Medlar, we are sure that the writer is from some part of Europe, and wishes to grow here a tree that is associated with the recollections of his boyhood. So little is the Medlar known in this country, that it is not even mentioned by Downing and Thomas, and though noticed by Barry, is disposed of in a few lines. The Medlar, *Mespilus Germanica*, is found in England and in Central and Southern Europe, and in its wild state is a more or less thorny shrub or small tree. It has entire leaves and solitary, white or pinkish flowers

THE MEDLAR (*Mespilus Germanica*).

an inch and a half in diameter. Its fruit, as seen in the engraving, has a broad, depressed space at the top, in which are exposed five

one-seeded bony cells, and which is surrounded by the long calyx lobes. There are several cultivated varieties in which the fruit varies from half an inch to an inch and a half in diameter. The fruit at maturity is russeted-yellowish or reddish-brown. When ripe it is hard, sour, and unfit to eat, and it is only when kept until decay begins that it becomes edible. It then has an agreeably acid and astringent taste, which makes many persons very fond of it. In England, where the fruit is cultivated to some extent, the "Nottingham" variety is regarded as the finest, but the "Dutch," as it has a larger fruit, is most cultivated. It is propagated on its own seedlings, or the quince, or the thorn may be used as a stock. As to its culture, it requires no different conditions from any other fruit tree; its growth is very irregular, and except where branches cross one another, it is best to let it have its own way. The only place where we recollect to have seen the Medlar is at Ellwanger & Barry's nursery, and a tree that endures the climate of Rochester, is likely to be hardy in most parts of the country.

THE PEANUT (*Arachis hypogœa*).—LESS THAN THE NATURAL SIZE.

The Peanut and Its Culture.

The number of inquiries about Peanuts, and their cultivation, while they indicate a widespread interest in the subject, also show that many inquirers know so little about the crop as to not be aware that the nut grows underground. Its peculiar manner of growth makes the plant one of great interest, and a knowledge of this is necessary, in order to give it proper care. The general aspect of the plant is shown in the engraving; in reality the vine forms a wide dense tuft, while, for distinctness, but a single stem is shown. The form of the leaves and of the small yellow flowers show its relationship to the pea, bean, and others of the Pulse Family, or *Leguminosæ*. After the ovary (or embryo pod) is fertilized, the other parts of the flower fall away, leaving the ovary, which at once begins to enlarge, and at the same time is pushed upward by the growth of a stalk beneath it; this stalk is slender and rigid, and soon curves, so that the top of the ovary, or forming pod, points downwards, and is pushed into the soil. In accomplishing this the stalk often grows to the length of several inches. When fairly buried, the pod soon reaches its full size, and matures, with its one to three large seeds. The pod, in all its stages, is shown in the engraving, which is somewhat below the real size. Those who propose to cultivate peanuts should, in the first place, consider if the season is long enough to allow them to ripen. Northern Virginia at the east, and Kansas at the west, are as far north as the crop has been successfully raised. The character of the soil is an important point, especially if the crop is to be marketed, as the price is affected by the appearance of the nuts, which in a reddish or very dark soil, are so colored as to greatly diminish their value. A light, friable soil is needed, which should be prepared by two plowings to form a perfectly mellow seed-bed. The plowing is shallow, as it is not desired to have the pods go far beneath the surface, on account of the difficulty of harvesting. The ground being well prepared, it is laid off in furrows, from 26 to 36 inches apart, according to the quality of the soil: it is then cross-furrowed, or checked, at the same distance. At each check or crossing a handful of fertilizer is placed; this may be guano, superphosphate, or its equivalent, to be applied at the rate of 150 lbs. to the acre. The crop is one especially benefited by lime, and if the land has not recently been limed, a dressing of 50 bushels to the acre should be given after the first plowing, and harrowed in. Planting is done as soon as danger of frost is over. The nuts are to be shelled, taking care not to break the thin skin that surrounds them. Having mixed the fertilizer with the soil, two nuts are dropped in a place and covered lightly to the depth of two, or not more than three inches. From what has been shown as to the manner of growth, it will be manifest that the success of the crop will depend upon keeping the soil in so mellow a condition that the young pods can penetrate it with ease. Hence from the first, the cultivator between the rows, and the hand hoes near the plants must be kept in use, not merely to keep down the weeds, but to insure the necessary loose and open surface. When the spreading of the plants prevent other working, hand weeding must be employed to keep the crop clean. The young pods force themselves into the soil, and need no help in the way of hilling up. We hope to describe the harvesting later in the season. As to varieties, the large showy nuts from Virginia and North Carolina are more salable than the thin-shelled, smaller, and sweeter "African" nut. The demand for Peanuts in this country is mainly, if not entirely for eating, but they are largely used in Europe as a source of oil, which is mostly consumed in soap making. In one year there were imported into Marseilles 180,000 bushels of these nuts, all from a single African port.

New Early Bulbs.—The "Snow Glory."

When a new bulb comes to us weighted with such a name as *Chionodoxa*, if it is ever to become popular it must have an easily remembered and readily spoken name, else no matter how beautiful it flowers, it will never take with the people. Fortunately *Chionodoxa* will translate into "Snow-Glory." We have, as other early spring bulbs, "Snowdrop," and "Snowflake," and this, more showy than either may well be "Snow-Glory." The genus is closely related to *Hyacinthus*, while the plants have more the appearance of some of the small *Scillas*. The most recent species, *Chionodoxa Luciliæ* was discovered in Asia Minor a few years ago by Mr. George Maw, who, while at the head of a large manufacturing establishment in England, turns his holiday excursions to excellent

THE "SNOW GLORY" (*Chionodoxa Luciliæ.*)

use in adding new plants to science and many floral treasures to our gardens.

The engraving shows the plant from very small bulbs; larger ones produce stems bearing five or more flowers. The leaves are two, and the flowers are well raised above them. The flower is of that beautiful blue so much admired in *Scilla verna*, but enlivened with white at the center, which gradually merges into the blue towards the margin, giving a bright star-like effect to the flower. The flowers from large bulbs are described as being an inch in diameter. It will probably prove quite hardy, as it stood a very severe winter in Europe unharmed. Besides being a fine addition to our very early spring bulbs, it will be much valued for greenhouse culture, and especially by florists to force for cut flowers; its form and size, and especially its lively color make it most desirable for bouquet work. As with most new plants, it will take some time to multiply it in sufficient quantities for it to be offered by the dealers in bulbs generally, but we trust it will not be long before the Snow-Glory will be within the reach of every one.

Raising Cottonwoods from Cuttings.

While the Cottonwood is one of the poorest of trees, it is nevertheless useful. The first want of the settler in a treeless locality is some kind of tree growth, and that which will give him this quickest is valuable, not so much in itself perhaps, as a help in growing other and better timber. "B. G.," Culbertson, Neb., writes, among other interesting matters, that he saw in a Minnesota paper that the farmers of that State were advised: "At any time during mild winter weather, procure cuttings 12 to 18 inches in length, and not less than two inches in diameter; in spring drop these in a furrow and cover with a plow, like so many potatoes, and afterwards smooth the ground with a light harrow." Our correspondent tried this method last spring, and it resulted, as he expected, in a complete failure. He would like to know if Cottonwood cuttings can be made to grow at all by this 'potato method." We should expect better results from root cuttings treated in this manner than from pieces of the branches. But why try the "potato method" when cuttings, large enough for stakes, generally grow when set in the ground in the usual manner, *i. e.*, with a part below and a part above ground? The surest way would be to use small cuttings upon which there are buds, but the Poplar and Willow, if large cuttings, two inches or more in diameter, are planted, will push "adventitious" buds, and thus gain much time over small cuttings.

The Maidenhair Fern. — A lady writes that she sees frequent mention of the grace and beauty of the Maidenhair Fern, and would know how to recognize it should she meet with it. If we were to say: "It is the most graceful of all native ferns," this might not help her, as its habit is so unlike that of all other native species that she might not, at first sight, take it to be a fern. The engraving here given, though small, so well gives the aspect of the fern that it will help to recognize it. The plant is usually about a foot high, and its stem at the top bears a number of small curved branches arranged in such a manner as to give a more or less circular outline when seen from above. The stem and its divisions are shining black, as if of polished ebony, while the leafy portion is of a most tender, delicate green. It is found in moist woods, and when taken up, remove

THE MAIDENHAIR FERN (*Adiantum pedatum*).

a good share of soil with it and plant in a shady and moist part of the fernery.

Sweet Peas.—Sow Early.

There are some old-fashioned flowers of such real merit that they will always be popular. Among these is the Sweet Pea (*Lathyrus odoratus*). Its beauty in the garden is sufficient to commend it, but as a cut flower it has especial merits, in its delicate colors, beauty of form and most exquisite fragrance; besides these it is remarkably lasting when cut. When we saw in the south of Ireland, in the middle of September, Sweet Peas growing six or eight feet high and full of bloom, from bottom to top, we for the first time saw of what this fine old plant is capable. As with the edible peas, our dry and hot summers make these of short duration with us, but we can have them in much more satisfactory condition than is usual by observing two points: to sow them early and to sow them deep. Put in the seeds the very first thing after the soil is in proper condition, and let them be at least four inches below the surface. A good plan is, to open a drill four inches deep, drop the seeds about two inches apart, and cover with an inch or so of soil; when the shoots begin to break ground, put on soil, a little at a time, until the drill is filled. The object of this is, to place the roots well below the surface where they will not be so soon affected by the heat and drouth, and thus prolong their season of bloom. The vines must have supports of some kind; if sown near a fence, strings leading from a peg in the ground to a nail on the fence will answer. A very pleasing method is to sow the seed in circles, two feet in diameter; set in the center a stake about five feet high, and lead strings from pegs in the circle to the top of the stake. At one time, needing a low screen or hedge in the garden, we made it as follows. Stout stakes were set at intervals and about five feet out of the ground; a few inches from the ground and at the tops of the stakes, string-pieces about three inches wide were nailed on; pea brush was then set, not very closely, along and next to this trellis. The upper ends of the brush were brought close to the top rail by winding twine around the rail in such a manner as to include and hold the tops of the brush. The ends of the brush were, by use of the pruning shears, cut level with the top rail. The peas were sown at the base of this trellis and soon covered it, making a beautiful sight. There are now a number of fine varieties of the Sweet Pea, as may be seen by consulting the seedsmen's catalogues.

Spinach for Everybody.

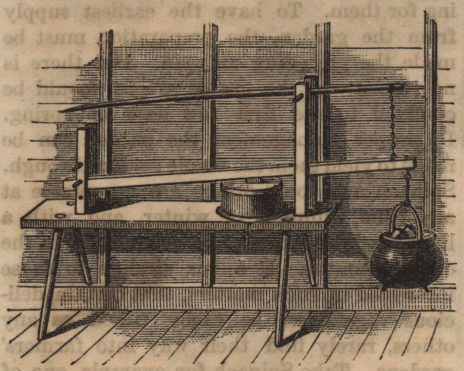
In the spring every one finds some kind of green vegetable acceptable—it seems to meet a natural want, and a list of the various articles consumed in different parts of the country, under the general name of "greens," would be a long one. A large share of greens is furnished by wild plants, and much time is consumed in hunting these by the roadside and in the fields. A very small portion of this time spent in the garden, would furnish vastly better greens without the trouble of hunting for them. To have the earliest supply from the garden, the preparation must be made the preceding autumn. But there is no reason why the use of greens should be confined to the first few days of spring. By proper management the garden can be made to yield them the whole season through. Spinach and some others are acceptable at any time, summer or winter, and with a little forethought, may be had except in the coldest months. It seems strange to those interested in such matters, that certain delicious vegetables, as easily raised as any others, rarely find their way into farmers' gardens. Take Spinach for example, one of the most delicate and delicious of all vegetables, always sold, and at a good price, in city markets, is so seldom seen in farm gardens that we may say that it is, as a rule, unknown to them. Yet its culture is as easy as that of its relative, the beet, and it may be had in the greatest abundance at a trifling cost, the seed being cheap. Select a warm early spot in the garden, and as soon as it can be made ready—which means highly manuring and thorough working—lay out drills 15 inches apart and sow just like beet seed. When the plants are up, stir the soil next to the rows and continue the cultivation by keeping the soil mellow and hand weeding in the rows just as for a crop of beets or carrots. As soon as the leaves are an inch or two long, thin the plants, leaving them about two inches apart, and use the thinnings. Soon the plants in the rows will crowd one another, when every other one may be taken for use, and by the time this thinning is completed, the remaining plants will be ready. In rich soil, the larger the plant the better it will be, and it is in good condition until it begins to show its flower stalks. A sowing should be made at intervals of two weeks, until hot weather. As to cooking Spinach, those who think that greens must be cooked with bacon or pork, will find Spinach better cooked thus than any other greens. To do this is to spoil its delicate flavor, and we may add, makes all greens less digestible than when cooked in clear water. To have Spinach in perfection, wash thoroughly, put into boiling water and let it boil with the lid off (to keep it green) 20 or 30 minutes, or until tender. Place on a colander to drain, chop fine, return to the sauce-pan—of course having thrown out the water—with a generous lump of butter, and let it simmer until the butter is melted and the whole heated through. It is often served with hard-boiled eggs. It may be eaten as other greens, with vinegar, but those who like the delicate flavor of the vegetable do not use any addition. There are other methods of cooking, but this is the simplest, and, to our taste, the best. Let those who have never grown Spinach, try it this spring.

THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

A Home-Made Cheese Press.

Many farmers, especially those in the newer parts of the country, are forced by circumstances to make, with their own hands, many of the implements used in the house and upon the farm. The accompanying engraving is of a handy and easily made cheese press, and one that has done good service for years in a household having the

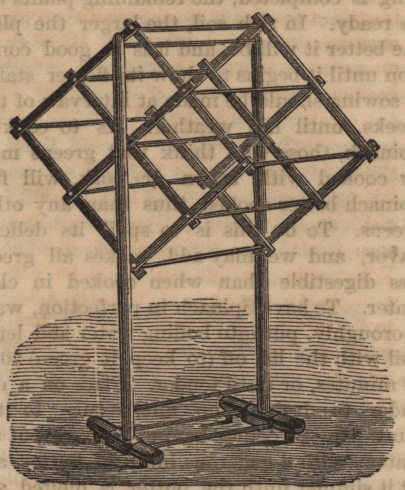


A HOME-MADE CHEESE PRESS.

reputation of making the best cheese in the county. The construction of the press is simple and easily understood from the engraving. The press may stand in the middle of the room, and be worked at from either side; but it will save space to have it stand against the wall. If there is a sill along the side, the legs next to the wall may be made shorter than the outside ones, and stand upon the sill. As the lever is brought down, and the kettle of stones raised, it can be held in place by putting its small end under one of the pegs shown on the short standards. A woman can handle this press—as we know some have done for years, who made as good cheeses as others with more costly presses.

A Clothes Dryer.

To the many devices for holding clothes while drying, already published, we add the following, as one that gives a large amount of



A HANDY CROTHES RACK.

hanging room for the space it occupies. It is made of light stuff, with the exception of the two standards and the foot pieces, which should be of hard-wood. The construction of this dryer is so plain, from the engraving, that no description need be given. Any one at all handy with tools can make this useful household convenience. When not in use the parts can be folded together, and the dryer will then occupy but a very little space.

Hints on Health and Comfort.

All of the strength, of body and mind, of power to move, to work, to think, comes, must come, and only comes, from proper food well digested. A few hours of effort uses up certain elements in the muscles, in the nerves, in the brain, which can only be replaced by digested food. One may go on for some time consuming elements previously stored, but exhaustion follows more or less rapidly, while the frequent supply of new elements, from food, is essential to active, efficient effort of muscles or mind.

Tonics and stimulants may temporarily help the dormant or weak digestive organs, enabling them to digest food, but they do not add to the stock of strength. They may, in the absence of food, push the muscles and nerves to activity; but it is only borrowing strength that must be soon supplied by food, or weakness and disease will surely follow. At best it is a rule, a law of our nature, that any activity excited by stimulants, will surely be followed by equal depression.

All heat or warmth in the body comes from food oxidized, slowly burned in the body, just as much, and in about the same way that heat in the stove or furnace comes from fuel oxidized or burned there. Warmth is always escaping from the body, unless it is in an atmosphere nearly up to 100° of heat. Warm clothing, warm houses, stalls, sheds, that prevent the rapid escape of heat, save the necessity of taxing the stomach to digest an excessive amount of food (fuel) to keep up the heat of the body, humane or brute.

"Good food, well digested," we said. That means a great deal. Nine-tenths of all the sickness, the bad or dull feelings, the headaches the depression, etc., come from indigestion, though few people are aware of it, or will believe it. What is digestion? The food in the stomach is moistened and largely liquified by the fluid supplied from the blood, coming in through myriads of little openings on the inner coating of the stomach.

If there is much food to be worked up, there must be a great flow of blood to supply the digesting fluid, the "gastric juice," as it is called. The blood is then drawn away from other parts of the body. After a heavy meal one feels dull, sluggish, because there is less general circulation of the blood. If violent or strong exertion of body or mind is made soon after eating, it draws the blood from the stomach, and digestion of the food is retarded.

If there is more food than the stomach can readily supply gastric juice for, some of it will be imperfectly worked over, and will go into the system in that condition. It will disturb the brain and other organs. It will affect and intensify any local trouble or disease. If one has weak or diseased lungs, this imperfectly digested food will irritate and intensify the trouble. For this reason a great deal of the coughing that occurs, actually and certainly comes from indigestion. Just so any and every other affection of any part of the muscular or nervous system, is intensified by the imperfectly digested food that is passing through the body.

Nature ordains that to be well digested by the gastric juice, the food must first be mixed with a good supply of *saliva*, and this can only be secured by thoroughly chewing the food—masticating it—working it over in the mouth long enough for the saliva to flow out of the glands in the sides of the mouth, and time must be given for it to be collected from the blood. One may *slowly* eat a heavy dinner and digest it, when a small repast quickly swallowed will be slowly and imperfectly digested. Eat slow, and keep every portion of food to be swallowed, some time in the mouth, to get its supply of saliva, sure.

As every particle of food must be acted upon by the gastric juice, or some of it will be troublesome afterwards, it stands to reason that the *finer* food is cut, chewed, masticated, the more easily and perfectly will it dissolve, or be digested. Meats, vegetables, any food masticated as fine as small shot, will certainly be digested far more easily, and very much sooner than if it goes down in lumps as large as buck shot, or chestnuts, or walnuts. Masticate the food *fine* in the mouth, and mix it well there with saliva.

Good teeth are a "means of grace," in that, if fully used, they prepare food for easy digestion, and save much of the ill temper and bad health arising from indigestion. Many a sour disposition would be modified by well masticated, well digested good food.—*Sharp* table knives that make it easy to cut food finely, and save some teeth work, and the danger of "lumps" of meat being swallowed except in a finely divided condition, are a material help to good digestion and health. Any housekeeper ought, as one of her first lessons, to learn how to sharpen knives, and to keep them *always* sharp.

The natural stomach of a full grown person does not hold a bushel, or a gallon, and if it did, the surface of the stomach requires a long time and hard work to collect enough gastric juice from the blood to digest even a *quart* of food. How about two quarts or more? If you smile at this, just set a bowl by the side of your plate, and put into it the *same amount* of solid and liquid food that goes into the mouth. What is in that bowl at the end of the repast, is what the stomach has got to work over and perfectly dissolve or digest, or there is to be trouble somewhere. *A small quantity of food well masticated and digested will give more real nourishment, and less trouble, than any very large meal.*

Broil meat or any kind of food long enough, and it will change to charcoal. After meat is heated through, every further addition of heat advances its condition towards the charcoal state. But charcoal is entirely indigestible. Rare cooked, fresh meats are far more easily digested, and furnish much more real nutriment than those "well done." Habit will make one enjoy the rare cooked steak as more juicy and palatable, and it is certainly better as food.

Spices, condiments, etc., in small quantity, when *needed* by the weak, infirm, or aged, stimulate the flow of saliva, and of the gastric juice, and these may help digestion. But the young and strong should reserve the use of these until infirmity or age makes them partially necessary, and then they will be all the more useful, because the system has not become so habituated to them that they will have little effect.

Any stimulants containing *alcohol*, as li-

quors, beers, wines, etc., are bad, because, though they excite the salivary and gastric glands, the alcohol in them is absorbed directly into the blood, injuring its natural composition, and it not only weakens these organs, but disorganizes the entire blood, and headache, depression—actual disease—is the positive, invariable result. A strong constitution may recover again and again, but the evil effects are going on all the time, and not only temporary, but ere long, severe disorganization will be the inevitable result.

Home Topics.

BY FAITH ROCHESTER.

Various Ways to Cook Eggs.

Eggs are usually very plenty on the farm in spring, and are so cheap to those who buy them that they are used with great freedom. Most lovers of eggs learn by experience that "enough is enough." Nutritious food is an excellent thing, but Nature usually gives us our nourishment in a less concentrated form and accompanied by considerable waste matter. Thus in our fruits and vegetables, there is a large proportion of fibrous and other innutritious matter, mixed intimately with, and, as it were, dividing the more nutritious portions. Besides this, we have the water that makes a large part of all fresh vegetable foods. To attempt to make a meal mostly of eggs, eating the same quantity as of other less concentrated foods, is to prepare the way for "pills and physic." Eaten with moderation, nothing is more nourishing than eggs in a fresh condition and properly cooked.

Soft Boiled.—Drop the whole eggs carefully into boiling water, and boil steadily three and a half minutes by the watch. This is a common method; though the white is hardened, the yolk is scarcely cooked at all.

Soft Boiled.—Another method. Lay the eggs in a warm basin or saucepan, and cover with boiling water. Let them remain *without boiling*, but where the water will keep hot for ten minutes. Both yolk and white will be cooked soft. [Eggs cooked by this method are sometimes called "coddled." Of late the city furnishing stores offer what they call "egg coddlers," which cook the egg quite differently. The affair is a small porcelain saucepan, only large enough for one or at most two eggs, and made very thick to retain the heat. This is heated, has a lump of butter placed in it; the egg is broken into the buttered dish and served, the heat of the dish finishing the cooking at the table.—Ed.]

Hard Boiled Eggs.—It is the common way to boil eggs only about five minutes, and call them hard. They are then very "hard" of digestion. Boil ten minutes and they are still hard and soggy. Boil them twenty minutes and they become light and mealy, and may easily be mashed and seasoned.

Eggs in Mexican Style.—Many years ago the editor of the *American Agriculturist* gave a method of cooking eggs in imitation of a style he had met with in Mexico. There a drawn butter flavored with garlic is used. His modification, which several have tried and found acceptable, was given so long ago, that it may be repeated. It is to boil the eggs hard, quarter them lengthwise, and pour over them drawn butter, to which as much "Worcestershire Sauce" has been added as the taste approves. As Worcestershire Sauce is not often found outside of cities, he suggested that good home-made Tomato Catsup would be an acceptable substitute.

Creamed Eggs.—Boil six eggs twenty minutes. Make a pint of nice cream gravy (boiling cream thickened with flour and seasoned with salt, or milk and butter thickened, if cream cannot be had.) Put a layer of this cream gravy over six slices of toast, laid on a hot platter. Cut the whites of the eggs in thin slices and lay over this, and rub half of the yolks through a seive over the layer of whites. Add another layer of whites, and another of sifted yolks, and lastly the remainder of the cream gravy. Set in the oven for a few minutes and serve.

Omelets.—Comparatively few of our housekeepers dare attempt an omelet, but there is nothing very difficult about it. The chief cause of failure lies in not having the spider hot enough, or in making an omelet too large for the pan. For a spider eight inches in diameter, not more than four eggs should be used. For an omelet of this size, use four eggs, one teaspoonful of salt, and two tablespoonfuls of cream, or in fault of that use milk. A larger omelet, and very good, is made with six eggs, a scant teacupful of milk, salt, and pepper. Beat the yolks alone to a smooth batter, add the milk, salt, and pepper, and lastly, the well beaten whites. Have the frying pan very *hot*. Put in a tablespoonful of butter, which should instantly hiss. Follow it quickly with the well-beaten mixture, and do not stir this after it goes in. Cook over a hot fire, and as the egg sets, loosen it from the pan without breaking, to prevent burning. It should cook in about ten minutes. When the middle is set, it is a good plan to place the pan on the high grate in the oven to brown the top. This is not needed if you turn half of the omelet over upon itself before turning the whole from the pan upon a hot dish. Eat while hot.

Omelet with Cold Meat.—Almost any cold meat—beef, mutton, chicken, may be chopped fine, seasoned a little, spread upon the omelet before it is doubled together, making an excellent dish and affording variety.

Ham Omelet.—[Mrs. Rochester, no doubt by oversight, omits the most delicious of all meat omelets, the *Omelette au Jambon* of the French. When lean, boiled ham is minced very fine and mixed with an omelet, we have the glorification of "ham and eggs."—Ed.]

Cauliflower or Asparagus Omelet is made by chopping either of these cooked vegetables when cold (only the tender tops of the latter), and mixing with the eggs before cooking. Bread crumbs soaked in the milk are a good addition. *Jelly* of any kind is sometimes spread over an omelet before it is folded. *Grated Onion* or *Chopped Parsley* and other "sweet herbs" spread over the omelet makes a good variety.

Scrambled Eggs.—Many use only eggs with butter and salt for this dish—for four eggs, one tablespoonful of butter. Melt the butter and turn in the beaten eggs, and stir quickly one or two minutes over a hot fire. A common practice is to increase the quantity without impairing the quality by adding milk,—a small cupful to six eggs, and a tablespoonful of butter with salt and pepper as preferred. Stir these ingredients over a hot fire (putting in the butter first) until the whole thickens. It should be soft and creamy when done. It is very fine served on toast.

"Counter-Irritants."

Not a little pain, disease, and sleeplessness also, may be saved by the proper understanding and use of *counter-irritants*. A pain in the head, and often in other parts of the body, can be removed or modified by putting the feet in hot water. How? why? When the feet are irritated it causes a rush of blood to them, their veins become full and distented. This draws off the blood that was before crowding into the head or other affected part and producing pain there. Even rubbing the scalp briskly may attract outwardly the blood previously pressing the internal organs.

A rubber bag of hot water at the feet, or other warm or gently irritating application, will often so draw down the blood from the excited brain that one will soon fall into a quiet sleep.—Ten to twenty drops of Aromatic Spirits of Ammonia swallowed in half a tumbler of water on going to bed, or when restless and wakeful during the night, will very often put one into an easy slumber. It is quickly absorbed into the blood, and carried to every part of the body, producing a gentle stimulus. This calls the blood to every point, equalizing the circulation, and thus relieving the before excited brain.

A "cold" generally means that there is or has been unequal heat, disturbing the blood circulation, and causing congestion, pain, and disease. A gentle physic of oil or calcined magnesia, in passing through the system, produces a flow to the intestines of fluids drawn from the blood. This reduces the blood as well as draws it from parts affected by the "cold."—Almost any cold taken before it becomes chronic, or so "seated" as to produce disorganization, may be relieved and usually cured by such a catharctic dose—one not severe enough to disarrange the digestive apparatus. "Physic a cold" is more philosophical than "feeding a cold," as the adage has it. The latter only aggravates the trouble.

A lightly sore or irritated throat is usually relieved or cured by applying an irritant to the outside. "Volatile liniment" is good for this. It is made by shaking well together any amount of sweet oil with one-fourth to one-half its bulk of aqua ammonia, or "harts-horn"—the amount depending upon the strength of the ammonia. It is a good, cheap counter-irritant to keep on hand—well corked, using a new cork as the old one shrinks from the action of the ammonia. It is also useful to rub well on the chest when there is soreness in the muscles.—Alcohol, or strong whiskey, rubbed upon the throat (*outside*) as a counter-irritant, often relieves a sore throat, and the same of a sore chest. When using alcohol cover the part well and quickly, to prevent a chill from the rapid evaporation. Liniment, alcohol, hot water, or hot wet clothes, or mustard, on the outside of the abdomen tends to relieve irritation of the bowels, on the general principle of counter-irritation above mentioned.

For *an Inflamed Sore Throat* or tonsils, a very good general remedy is to gargle the throat every hour or two with a teaspoonful of chlorate of potassa solution. It is well to keep in every house a good sized vial of water with more chlorate of potassa in it than will dissolve. The clear liquid is then always of uniform strength, ready for use—a teaspoonful at a time, swallowing it after gurgling it against the inflamed tonsils.

BOYS & GIRLS' COLUMNS

The Doctor's Talks.

Youngsters, we have moved! Did you ever move? If so, I have no doubt you thought it great fun to carry your household goods from one house to another, and very likely some of you have felt quite proud to be entrusted with the kitchen clock, or some other breakable thing to be taken to the new quarters. But moving household "goods and chattels" is mere child's play compared to moving an establishment like ours, with all the rattle-traps of a printing office added. But I will not tell you about the moving, but the fact that we have moved may interest many of you who have grown to look upon the *American Agriculturist*, Aunt Sue, Uncle Hal, The Doctor, and all the rest, as belonging to, and a part of 245 Broadway. It seemed to all of us as if that was our home.—Yet having been away from there a week or two, it is now as easy to write 751, as it formerly was, 245 Broadway. Perhaps few lines are more frequently quoted than those written over a century and a half ago by Bishop Berkeley, who wrote:

"Westward the course of empire takes its way!"

This is very true as to the United States where the movement is always "westward," but does not apply to the City of New York, which has very little "westward," or eastward, and the "course of empire," or of anything else, if it moves at all, must go northward. Those of you who have never been in New York, must know from the maps that the city is upon a long and narrow island, about 14 miles long and averaging less than a mile and a half in width; on one side is the Hudson, or North River, and on the other side a narrow part of Long Island Sound,—the East River, and separated at its upper end from the main land, by a small stream, the Harlem River. The early settlement of the City was at the lower end of this long and narrow island, filling it from shore to shore, and as the city grew, its population pushed upwards. How rapidly it has grown is shown by a catalogue of plants published by that eminent botanist (and my dear old friend), Dr. John Torrey, who in 1819 stated that he found a certain plant, "in fields near Canal Street."—Canal Street is now very far down town, nearly a mile below our present office. So, from the very shape of the island on which the city is built all increase must be in one direction. The *American Agriculturist*, finding it desirable to keep up with "the course of empire," had to go northward; to go westward or eastward a short distance would take it into the heart of the heavy wholesale and shipping trades. If you look at the map given last month, on page 121, you will see with what good company we are surrounded, and the adage about "Birds of a feather" holds even in business matters.

When Any of our Boys and Girls,

or their fathers and mothers, visit New York, they will find that 751 is even easier to reach than good old 245. When any of you do come to the city you will be very sure to visit 751, and if you do not find Uncle Hal or the Doctor, (Aunt Sue does not live in the City), there will be some one else to make you welcome. I know that the Orange Judd Company wish all of the friends of the *American Agriculturist*, old and young, to make 751 Broadway a place where they will feel at home in this great wilderness of a city, where a perfect stranger feels more at loss than he would in a real wilderness.

More About Snails.

Last month I advised those who would study the ways of fresh-water snails to make a little aquarium in a jar of some kind. Unless you live in a warmer climate than I do, your aquarium and your snails are still in the future, for, as I write, every fresh-water pool, brook, and river, is closed by ice. But when spring fairly opens, it is astonishing to see how soon both animals and plants come forward and begin their season's work. In speaking of an aquarium, I use the word as a convenient one for any kind of glass vessel that you may be able to procure. Of course a jar of clear glass will let you see what is going on within, better than any other, but you can manage very well with a common fruit jar, and young naturalists must not be too particular. You will recollect that I advised to have, in the first place, a jar; to put in the bottom some clean gravel; to nearly fill the jar with water (river or rain water will be best); to get some fine-leaved water-plants and place them in the water, and lastly, to put in some water snails. Now, let us, in the first place, see what all this means.

What is an Aquarium?

A jar of water with some plants in it would not be, in the proper sense of the word, an aquarium; neither would a jar of water with snails, fish, or other animals, be one. An aquarium, as the term is used, must represent a large body of water, in which there is both animal and vegetable life, and in which both animals and plants help one another. You know that were you to put some small fishes in a jar of water, they would soon die unless you changed the water every day or so; snails being less active would live longer. Some snails breathe by taken the air from the water, but would die in a few days if the water were not changed. If you think why this is so, you will soon conclude that the fish or the snails have taken something out of the water that is necessary for them to have in order to live. A fish placed in a jar of water does well enough for a while, and seems to be contented; after a while, though, you will see that it comes to the surface for a breath of air, and it will soon after die, as it is not designed to breathe air in that manner. Fish breathe by passing the water over their gills, and take from the water the air that is *dissolved in it*. When the fish or other animals have removed this air from the water, they soon die. To keep fish and some other aquatic animals alive, we

SEA SNAILS AT DIFFERENT DEPTHS IN THE MUD.

Must Have Plants in the Aquarium.

Now, I can only briefly say—for most young people could not understand the full explanation—that in the Aquarium the plants, in growing, give off to the water just what the fish and other creatures need, and these in turn give to the water just what the plants must have in order to grow. You will learn all about this when you get older, but at present you must take it as a fact. It is a most beautiful arrangement that the plants and the animals, so to speak, balance one another; the plants providing what the animals must have in order to live, while the animals give out that without which the plants cannot grow. The little jar represents that which goes on in a larger pond or lake. But more than this, it shows, as you will learn when you grow older, the wonderful relations of plant and animal life everywhere, out of the water as well as in it; how these two forms of life,

The Animal and Vegetable,

are related to one another; for it is not alone in the water of the Aquarium that the plant supplies the wants of the animal and the animal helps the plant, but this beautiful balance is kept up the wide world over. And to come back from the wide world to our jar. You now see why I told you to put some plants in the jar. While some water snails come to the surface to breathe, others do not, and as you will be likely to find both kinds, it is well to prepare for both.....Having your jar of water, your plants, and as many different kinds of snails as you can find, you will be interested in watching their movements and ways of living. You will very likely soon find little jelly-like masses attached to the side of the jar. If you have a magnifying glass and examine this jelly, you will see that it contains several eggs, and within each egg you may be able to make out a very young snail, with a bit of a shell just forming. Here you will find much to interest you, in watching the minute young snails, observing how they grow, from day to day, and finally leaving the egg, start off for themselves. Those who live near the sea-shore or salt water rivers will find various kinds of snails, and quite different from those of fresh water. As a salt water aquarium is rather difficult to manage, I do not advise you to try it. If you watch the most common of these snails, along the shore, you will see that they nearly bury themselves in the mud, and in order to have clear water to breathe, they take it in through a little tube, called a "siphon," which extends above the mud into clear water. I intended to have stated that some of the engravings there used last month, as well as this one, were from a charming little book by Mr. Edward Morse, called the "First Book of Geology"—a work that I hope those who can afford it may possess.

THE DOCTOR.

Our Puzzle Box.

CROSS-WORD.

My first is brilliant but not in gay,
My next is in April but not in May,
My third is in partner but not in mate,
My fourth is in canter but not in gait.
My fifth is in tumble but not in fall,
My sixth is in kitchen but not in hall,
My seventh is in fender but not in grate,
My eighth is in kingdom but not in state,
My ninth is in happy but not in good,
My tenth is in timber but not in wood,
My eleventh is in battle but not in war,
My twelfth is in verdict but not in law,
My whole, I fear, is sadly true
Of many an action done by you.

NUMERICAL ENIGMAS.

1. I am composed of 22 letters:

My 13, 4, 19, 19, is used at church.
My 17, 8, 21, 3, 20, 21, is held in the woods.
My 6, 14, 9, 10, is to try.
My 16, 18, 7, is a plaything.
My 1, 14, 19, 17, is to aid and to prevent.
My 15, 19, 22, is cunning.
My 11, 2, 12, is much needed by farmers.
My 3, 12, 5, 16, is a home.
My whole is a well-known proverb. G. B. F.

2. I am composed of 28 letters:

My 4, 13, 1, is a mark.
My 16, 17, 18, is a propeller.
My 6, 7, 8, 9, 10, is a girl's name.
My 21, 22, 23, is very powerful for good or evil.
My 24, 25, 26, is a kind of dwelling.
My 15, 14, 3, is a number.
My 16, 15, 13, 11, is a pedestal.
My 2, 12, 19, 5, is much used by shoemakers.
My 27, 9, 20, 28, 21, we must all do before we can walk.
My whole is something which you should read if you have not yet done so. U. S. A.

DEFINITIONS.

(*Explanation.*—The letters necessary to spell the original word, defined, must be found in the letters used in the definition of it.
Example: "Science of harmonical sounds." In that definition you may find the letters, M-U-S-I-C.)

1. To walk through any yielding substance.
2. A piece of land containing 160 square rods.
3. Custom, interest.
4. Act of growing, to increase.
5. To take any obstruction from, to open.
6. Backward.
7. View through an avenue, the avenue itself.

ALPHABETICAL ARITHMETIC.

FENL)TSROWFTNA(ETERFS
STOA
WNEW
AEEO
TNLF
STOA
EERT
EOOF
OFSN
TENL
LERA
LNRS
ENR

DIAMOND.

1. Part of a house. 2. A verb. 3. The result of fire. 4. A man's name. 5. A girl's name. 6. Amiss. 7. Part of an apricot. The central letters, perpendicular and horizontal, name one of Shakspeare's characters. BEATRICE.

LOGOGRIPH.

In a noun, composed of five letters, may be found seven verbs, an animal, a color, a fruit, a beverage, three other nouns, an adjective, and a preposition.

TRANSITIONS.

(The explanation may be found in the February number of the *American Agriculturist*, 1881.)

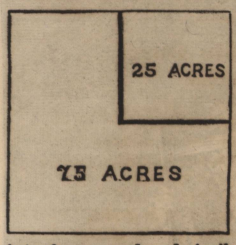
1. Change *mine* to *hers* in four moves.
2. Change *bran* to *barn* in nine —.
3. Change *fish* to *fowl* in nine —.
4. Change *moth* to *wasp* in five —.
5. Change *dark* to *pale* in three —.
6. Change *head* to *feet* in three —.

CONCEALED JEWELS.

1. Art thou going to Peru by the first conveyance?
2. Yes, indeed I am! on Daniel's account.
3. Thou shouldst have gone with a retinue, as became thy station.
4. Oh! I shall stop all that nonsense.
5. Will you be kind enough to hand me a cigar, Nettie?
6. You appear low-spirited, Sam?
7. Yes, rancor always leads to unpleasantness.

DIVISION OF THE FARM.

A farmer had four sons and one hundred acres of land. He reserves one quarter, 25 acres, in one corner for his own use, as shown in the accompanying diagram. The father then tells his sons that he will give them the rest of the land, 75 acres, if they will divide it into four equal lots that must each be of the same shape. The question to answer is: How were the lines drawn so that the 75 acres were divided into four equal and similar lots? The sons satisfied the request of their father, and received their land, 18¾ acres each. Let some of our farmers' sons—and daughters too—try their hands at making such a division.



SCATTERED PROVERB.

(In the following stanzas may be found, scattered, words necessary to form a well-known proverb.)

The tide flows in and the tide flows out,
The waves are rolling, the whales they spout,
A life on the ship for me.

The trees are budding, 'tis lovely May,
The moss is green and the birds are gay,
A life in the woods for me.

The family gathers around the fire,
Close by the hearth-stone sits the sire,
There's no place like home for me.

AUNT SUE.

DOUBLE ACROSTIC.

The initials name a bird of prey; the finals a carnivorous and herbivorous animal.

1. Reproach.
2. A fashionable summer resort.
3. An attorney in a spiritual court.
4. Variety in musical movement.
5. An imitator.
6. A sailing vessel.

WORD MAKING.

(Add to one of the words in each list, the letter at the end, and transpose it into another word.

Example: And, sadden, types, bards, poem, splash:—U.

Add the letter U to the word "bards," and transpose into "absurd.")

1. Music, time, overture, clove, vocal, turnip:—E.
2. Aspire, press, maid, damson, tedious, torture:—X.
3. Bourne, haven, tavern, saved, burned, foul:—I.
4. Share, bestow, plenty, fashion, fairy, meadow:—F.
5. Battle, fire, inn, strife, tank, raid:—C.
6. Lead, darkly, narrow, saws, spirit, porter:—D.

Illustrated Rebus, No. 484.—Old and young persons will both find very good advice here.

ANAGRAMS.

1. More shapes, Tom?
2. I graze on ration.
3. I cannot reel.
4. Old Gartia.
5. Snap her.
6. Put special.
7. Base milk, Aunt.
8. Get varnish.
9. Arlim nut-oil.
10. This tag away.

Answers to Puzzles in the February Number.

CROSS WORD.—Emporium.

ANAGRAMS.—1. Synagogues. 2. Octogenarians. 3. Industriously. 4. Workmanlike. 5. Negotiable. 6. Committees 7. Adolescent. 8. Pentateuch. 9. Undisguised. 10. Contaminates.

CONCEALED NOUNS.—1. Fish. 2. Target. 3. Heart. 4. Watch. 5. Dish. 6. Coat. 7. Key.

ENIGMATICAL BOUQUET.—1. Phlox. 2. Cowslip. 3. Coxcomb. 4. Tulips. 5. Buttercup.

ILLUSTRATED REBUS, No. 482.—Fear God and keep His commandments, for this is the whole duty of man.

PI.—The keenest abuse of our enemies will not hurt us so much in the estimation of the discerning as the injudicious praise of our friends.

DECAPITATED TREES.—1. Larch. 2. Orange. 3. Papaw. 4. Shaddock.

TRANSITIONS.—1. Page: pale, pall, poll, pool, tool, took, book. 2. Boat: bolt, bold, bond, band, land. 3. Salt: malt, melt, meat 4. Lead: head, held, hold, gold. 5. Lamp: lame, came, care, core, corn, morn, moon. 6. Step: stop, slop, slot, soot, root, roof.

CURTAILED BODIES OF WATER.—1. Arabian, Persian, Indian: Arabia, Persia, India.

DOUBLE ACROSTIC.—SCHUYLER-BURGOYNE: 1. Shrub. 2. Chapeau. 3. Heifer. 4 Umbagog. 5. Yeddo. 6. Lily. 7. Ensign. 8. Rifle.

SUBSTITUTIONS.—1. Fact, face, race, rice, rite. 2. Revolve, resolve. 3. Absent, assent.

CHARADE.—Checkmate.

SCATTERED SQUARE.—
S N O W
N O N E
O N C E
W E E K

A PUZZLING MAP OF AMERICAN CITIES.

Among Some American Cities.

The large engraving which is here given may be looked upon as a map. You will say it is a strange sort of a map; but if you look sharp ten cities may be found scattered here and there upon it. These are of various sizes, from the very largest down to those that rank as small; they are all in North America, all, save one, within the boundary of the United States. The first city that you are to find is situated in a State that is better known for its mountains and its rocks than for its size. The State is sometimes called after a kind of stone that abounds within its borders. This city is situated on a river that is noted for a number of large cotton and other mills, which its waters turn. There is a town in an adjoining State that is noted in history, for the famous but small battle fought there, and is to-day the center of much literature and learning. City No. 2 is one of the first ten in size, in the United States, located on a large bay not far from No. 3, which is not situated in any of the United States. This is noted for its wide streets, fine government buildings, etc. The relation of this city to the whole world makes it very well known. People are sometimes sent to this city by their friends....No. 4 is situated near a lake, and not far from the mouth of a very large river. It is a pleasant city to live in during the winter, but in summer it is too warm for the greatest comfort.....No. 5 is partly *new*, but otherwise is one of the old cities of the United States. It is perhaps best known as a place where people go to spend the summer. For example, those who live in No. 4 during the winter, go to No. 5 to spend the summer. You would not expect to find those two cities near each other on our map. It must not be thought strange if the next city is in some English country. It is a grand old city, situated on an island in a large and very beautiful river.....There is a city near the head of a large lake, and this is our No. 7. It is noted for its extensive commerce, flour, etc.....Quite unlike this is No. 8—one of our largest cities, and at the same time one whose people—many of them—go daily into another city to their business. It is noted for its large and handsome churches.....No. 9, we are sorry to say, is known best for the excellence of the beer which it makes. It is situated on one of the Great Lakes, and is a large exporting city.. .To find No. 10, the last on the list, will not be difficult, after the others are all found. This easy task reminds us of the "Ten Little Indians," or rather of the one that was left after all the others had gone—do you remember where?

Easter and Easter Eggs.

It will soon be Easter, or Easter Sunday, and many a boy and girl has looked in the almanac to see when it comes this year. Easter is the Church festival of the Resurrection of Christ, and the name comes from the German *Ostara*, a goddess of light or spring, in whose honor, in ancient times, a feast was celebrated in April of each year at about the same time as the Christian festival. In olden times the celebration of Easter lasted for more than a week, and was a time of great rejoicing. Many popular sports were engaged in, and a great deal of fun was made by those who would scarcely laugh all the rest of the year. Easter corresponds to the *pascha*, or Passover of the Jews, and is frequently called Pasque or Pask. The most interesting ancient Easter or Pasque rite, and the one most widely known at the present day, was that in which eggs were used. In the good old days, everybody, everywhere, all over the Christian world, prepared, exchanged, and ate "Pasque Eggs" on Easter morning. These eggs were often very gaily and expensively adorned. We see a little of this done at the present day, but the high art of "egging at Easter" is not now known. The eggs were stained of all colors by the use of dyes. By coating a portion of the shell with tallow, this is kept free from the coloring, and variegated eggs with strange designs were produced. It used to be the custom, in Scotland, for the young people to go out early on Easter Sunday, and search for wild fowl's eggs for breakfast, and lucky would be the one who should find the largest number. This is doubtless the origin of a practice among American children, which the accompanying engraving very likely brought to mind before a word was read. Lucky is the child who finds the largest number of eggs on Easter morning! This desire to be the "lucky" one has developed the practice of making that luck depend upon the capacity to hide the greatest number of eggs day by day for weeks before the joyful morning comes. What out-of-the-way places are sought for! What depths of the hay-mow are reached, and what high beams in the barn are scaled, that fresh laid eggs may be put where they will keep! I remember that one spring the hens, which I took special pains to feed well for their work, did remarkably as to laying, and were particularly free from any desire for sitting. I watched them with the greatest care, and gathered the eggs daily. Enough were taken to the house to satisfy the table—none to sell—and the rest were put away in a peculiar shaped hole in the side of the hay mow. The covering was always carefully placed, so that I might easily detect it if any one had been to my "nest." An old aunt once remarked in my hearing that the hens did not seem to do quite so well this spring, except in the way of "cackling," and there was a plenty of that. I wondered that another boy in the same family with myself did not take some interest in eggs, but he seemed as thoughtless of the coming Easter as the hens themselves. When Easter morning came I went out bright and early with a large tin pail, to milk the cow, and of course went straight to the "hen's nest." The cover had not been molested, and the eggs were there as I could feel, as I put my arm down the hole. The hay was dug away, and I began to take out the eggs, but stopped after thirteen had been removed—because there were no more. This seemed strange. Yes, it was strange, and would bear looking into. Below, and a trifle to one side, I found an opening large enough for a rat to pass to a hole in the floor below. Just at this moment I saw a young relative of mine standing on the barn floor with a great basketful of oval-shaped white and brown bodies, that are sometimes sold by the dozen. I looked again, and he seemed to laugh, I thought he was laughing at me, and do to this day. More than that, I think he got all his eggs out of one "nest," and did not mind how the hens could have laid them there either. I felt so sure about the whole matter, that I did not even ask him whose eggs he had, but left him to have all his sport by himself. It was something of a disappointment to me, to not get what I went after, but perhaps it paid after all. Some people profit by sad lessons of experience, and the next year the egg matter was much more in my favor.

AFTER THE PASQUE EGGS ON EASTER MORNING.—*Drawn and Engraved for the American Agriculturist.*

The picture on this page tells its own story. It is Easter morning, and the boys, and a girl too, are after the Pasque eggs. The hay mow is being searched in a thorough manner, and with great success, if we may judge from the show of eggs. It is a time of considerable sport, but the one who does not enjoy it the least is not observed by the children, though he may be in their minds. It is hoped that they may all have a good Easter breakfast—"A Feast of Eggs." That the little girl may not fall or bang her basket against the ladder in descending is the sincere wish of your UNCLE HAL.

THIRTY-SIXTH ANNUAL REPORT

OF THE

New-York Life Insurance Co.

OFFICE, Nos. 346 and 348 BROADWAY.

JANUARY 1, 1881.

Amount of Net Cash Assets, January 1, 1880.....$8,185,431.68

REVENUE ACCOUNT.

Premiums	$7,014,819.59	
Less deferred premiums Jan. 1, 1880	367,989.02	—$6,646,830.57
Interest and rents, (including realized gains on real estate sold)	2,635,877.95	
Less interest accrued Jan. 1, 1880	317,989.11	—2,317,888.84—$8,964,719.41
		$47,150,151.09

DISBURSEMENT ACCOUNT.

Losses by death, including Reversionary additions to same	$1,731,721.37	
Endowments matured and discounted, including Reversionary additions to same	564,579.85	
Annuities, dividends, and returned premiums on cancelled policies	2,203,590.02	
Taxes and re-insurances	212,424.06	
Commissions, brokerages, agency expenses and physicians' fees	770,804.30	
Office and law expenses, salaries, advertising, printing, &c	322,910.64	—$5,806,030.24
		$41,344,120.85

ASSETS.

Cash in bank, on hand, and in transit (since received)	$852,028.10	
Invested in United States, New York City, and other stocks, (market value $16,764,988.05)	14,925,174.09	
Real estate	5,029,324.59	
Bonds and mortgages, first lien on real estate, (buildings thereon insured for $15,365,000.00 and the policies assigned to the Company as additional collateral security)	16,464,922.23	
Temporary loans, (secured by stocks, market value, $3,184,840.00)	2,491,000.00	
* Loans on existing policies, (the reserve held by the Company on these policies amounts to $2,975,000)	597,451.12	
* Quarterly and semi-annual premiums on existing policies, due subsequent to Jan. 1, 1881	387,972.13	
* Premiums on existing policies in course of transmission and collection (estimated reserve on these policies $440,500. included in liabilities)	204,852.99	
Agents' balances	34,228.23	
Accrued interest on investments Jan. 1, 1881	357,167.37	—$41,344,120.85
Excess of market value of securities over cost		$1,839,813.96

** A detailed schedule of these items will accompany the usual annual report filed with the Insurance Department of the State of New York.*

CASH ASSETS, Jan. 1, 1881..... $43,183,934.81

Appropriated as follows:

Adjusted losses, due subsequent to Jan. 1, 1881	$335,195.40
Reported losses, awaiting proof, &c	198,761.98
Matured endowments, due and unpaid, (claims not presented)	109,643.96
Annuities, due and unpaid	5,294.25
Reserved for re-insurance on existing policies; participating insurance at 4 per cent Carlisle net premium; non-participating at 5 per cent. Carlisle net premium	36,473,691.79
Reserved for contingent liabilities to Tontine Dividend Fund, over and above a 4 per cent. reserve on existing policies of that class	1,752,165.82
Reserved for premiums paid in advance	14,084.62
	$38,886,837.82

Divisible Surplus at 4 per cent.....$4,295,096.99

Estimated Surplus by the New York State Standard at 4½ per cent., over $9,000,000.00

From the undivided surplus of $4,295,096 the Board of Trustees has declared a Reversionary dividend to participating policies in proportion to their contribution to surplus, available on settlement of next annual premium.

During the year 6,946 policies have been issued, insuring $22,229,979.

Number of Policies in force	Jan. 1, 1877, 45,421. Jan. 1, 1878, 45,605. Jan. 1, 1879, 45,005. Jan. 1, 1880, 45,705. Jan. 1, 1881, 48,548.	Amount at risk	Jan. 1, 1877, $127,748,473. Jan. 1, 1878, 127,901,887. Jan. 1, 1879, 125,232,144. Jan. 1, 1880, 127,417,763. Jan. 1, 1881, 135,726,916.
Death-claims paid	1876, $1,547,648. 1877, 1,638,128. 1878, 1,687,676. 1879, 1,569,854. 1880, 1,731,721.	Income from Interest	1876, $1,906,950. 1877, 1,867,457. 1878, 1,948,665. 1879, 2,033,650. 1880, 2,317,889.
Divisible Surplus at 4 per cent.	Jan. 1, 1877, $2,626,816. Jan. 1, 1978, 2,664,144. Jan. 1, 1879, 2,811,436. Jan. 1, 1880, 3,120,371. Jan. 1, 1881, 4,295,096.		

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Extra Early, Very Dwarf (8 to 10 Inches), Requires no Bushing, Exquisite Flavor.

Acknowledged by all to be the best and earliest Pea grown. Editor of American Agriculturist says: "Very early, productive and good; quality not to be surpassed."

CAUTION.—As there is another Pea in the market called "American Wonder," send to us and get the genuine Bliss' American Wonder. Observe our fac-simile on every package.

PRICES.—One-fourth pint package, 20 cents; pint, 65 cents, quart, $1.25; by mail, post-paid.

Our Novelty Sheet, giving full particulars, mailed free.

ESTABLISHED 1845.

300 BEAUTIFUL ILLUSTRATIONS,

With a richly colored plate of a Group of Pansies, and a descriptive priced list of 2,000 varieties of FLOWER and VEGETABLE seeds—with much useful information upon their culture—150 pages—mailed to all applicants enclosing 10 cents, which can be deducted from first order for seeds.

Address, **B. K. BLISS & SONS,** 34 Barclay Street, New York.

Pringle's New Hybridized Excelsior-Hulless Oats.

Mr. C. G. Pringle, the well-known successful hybridizer, to whose efforts we are indebted for the celebrated *Champlain and Defiance Wheats*, has been successful in imparting important improvements to another cereal. We have purchased the entire stock of this promising novelty, and now offer for the first time **Pringle's Hybridized Excelsior-Hulless Oats.**

With a view to impart to the hulless species the size of plant, vigorous habit, and productiveness of one or other of the favorite hulled sorts, Mr. Pringle, amongst other experiments, hybridized the well-known Excelsior Oats with the Chinese Hulless, and the experiment proved highly successful, the result being the variety now offered.

For further particulars see our Illustrated List of novelties mailed free to all applicants.

Price: Packets containing one ounce, 25 cents; 5 packets for $1.00.

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SEEDS! BURPEE'S

are warranted first-class. Our New Trial Box for 1881 contains one packet each of *Winningstadt Cabbage, New Alpha Tomato* (this alone sold at 25c.), *Dewing's Improved Beet, Norfolk Savoy Spinach, Prolific Nutmeg Melon, Scarlet Turnip Radish, New Maltese Parsnip*, and *Butman Squash*. All the above, with full instructions, mailed for **only 25c.** *in postage stamps.* Or we will mail **10 packets of FLOWER SEEDS,** for trial, for 25c. **ORDER NOW,** and ask for **BURPEE'S 1881 FARM ANNUAL,** beautifully illustrated, sent free to any address. *Write for it.*

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LOW'S ESSEX HYBRID SQUASH,

Without exception the *Best squash in cultivation.* The most *productive, quickest growing* (can be planted as late as July) and *best in quality.* **Essex Early Hybrid Tomato,** the *handsomest* and most *profitable Tomato grown. Get Headquarters' Seed of the above—direct from the originator.* My *illustrated Seed Catalogue for* 1881 *sent free to all,* giving description and testimonials from those who have *raised* and *tried* them.

AARON LOW, Seedsman,
Essex, Essex Co., Mass.

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"MOORE'S NEW CROSS-BRED."

The largest in cultivation. We have received the First Prizes for Asparagus from the Mass. Horticultural Society for many years, and the above-named is an improvement on that variety. Also, a fine stock of **Moore's Early Grape** and other specialties. Send for circular.

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Our stock of Onion Seed has been raised from selected bulbs, and carefully tested, and we can recommend it with the greatest confidence, as equal to any ever offered in this or any other market.

	oz.,	*¼ lb.*	*lb.*
Extra Early Red	$0.40	$1.25	$4.75
Early Red	35	1.25	4.50
Wethersfield Large Red	40	1.25	4.25
Danvers Yellow	40	1.25	4.25
Yellow Dutch	35	1.25	4.00
White Portugal	40	1.25	4.25
Red Globe	50	1.75	6.00
White Globe	50	1.50	5.75

In lots of 5 lbs. and over, 50 cents per lb. may be deducted. Special prices given for larger quantities.

Postage must be added at the rate of 16 cents per pound when ordered by mail.

B. K. BLISS & SONS, 34 Barclay Street, New York.

NEW POTATOES.

Extra Early Peach Blow.—A variety of great merit, as early as the Alpha, and somewhat like this favorite variety in appearance, of uniform size, very prolific and excellent cooking and keeping qualities.

White Star.—Perfectly distinct, oblong, large and handsome tubers, medium early; as a table variety faultless.

Adirondack.—The symmetrical form of this variety at once attracts attention; extremely productive, flesh pure white, floury and of excellent flavor; keeps well.

Price of either of the above varieties by mail, 1 pound $1.00; 3 pounds, $2.50.

Queen of the Valley.—A remarkable variety of enormous size and extraordinary productiveness; its vigorous habit enables it to resist disease. Cooks and keeps well. By mail 75 cts. per lb.; 3 lbs. $2.00.

Late Beauty of Hebron.—A handsome, oblong variety; a sport of the original Beauty of Hebron; an abundant cropper; table properties of the highest order.

American Magnum Bonum.—Very early and productive; unusually large, resists disease well; when cooked floury and of a delicious flavor; an immense cropper.

Sutton's English Magnum Bonum.—A late variety of great merit; very prolific and quality of first excellence. Price of each of the last three named varieties by mail 60 cts. per lb.; 3 lbs. $1.25.

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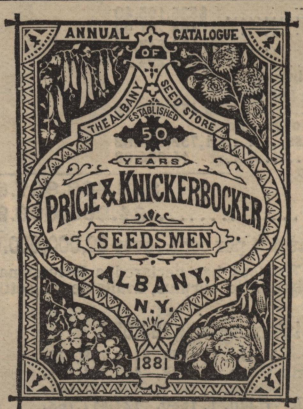

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Annual Illustrated Catalogue free to all applicants. Address, D. C. BRAINARD, Agt, Shaker Village, Mt. Lebanon, N. Y.

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WARRANTED FRESH AND GENUINE.

Early Red Globe	Pk't,	10c., oz. 25,	lb. $3 50
Wethersfield Large Red	"	10c., oz. 25,	lb. 3 50
Yellow Globe, Danvers, *extra stock.*	"	10c., oz. 40,	lb. 4 50
Extra Early Red, *very choice stock.*	"	10c., oz. 40,	lb. 5 00
Fottler's Imp'd "E'y B'w'k C'bb'ge"	"	10c., oz. 40,	lb. 4 00
Egyptian Earliest Beet	"	5c., oz. 10,	lb. 75
Dewing's Early Turnip Beet	"	5c., oz. 10,	lb. 50
Imp't Dwarf Celery, *The Best* of all,	"	10c., oz. 50,	lb. 6 00
Sugar, Tours Netted Melon	"	10c., oz. 40,	lb. 4 00
English Potato Onion Setts, (Express),	peck, $2;	bu.,	8 00
Hawley's E. H'rtf'd Ex. E'y Peas	"	$1.75; "	7 00
Little Gem Dwarf, Extra Early,	"	" 2.00; "	8 00
Pride of Am'a Potato, v'y ch'ce,	"	" 1.00; "	3 00

If by mail, *in quantities* of ¼ lb. and upwards, postage at the rate of 16c. per lb. must be added. *Catalogues free to all.* Wholesale Trade List, for dealers only. Address,

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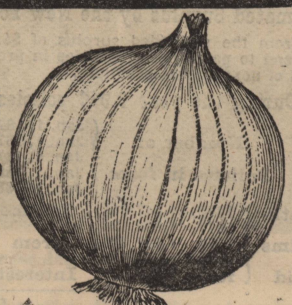

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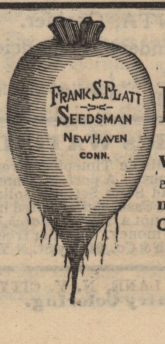

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As INTRODUCER of the WHITE EGG TURNIP, I offer the GENUINE SEED once more to the public.

Catalogue Free on application.

Frank S. Platt,
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SEEDS

Our large *Illustrated Catalogue* of everything for Farm and Garden **mailed free to all.** ☞ Send for it at once. It costs nothing; may save you a great deal.

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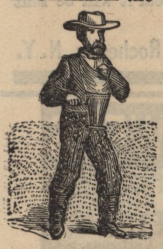
INCREASE the yield; **SAVE** time and money, by using



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No. 1, price $30, sows 12 to 15 acres per hour. No. 2, (see cut,) price $6, from 4 to 6 acres, at the same time sowing *better and far more evenly than by hand or any other method.* Send for circular and testimonials. **Agents Wanted.**

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223 Church St., Phila, Pa..

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NEW, RARE, and BEAUTIFUL PLANTS

Will be ready February 1st, with a Colored Plate. It is full in really Good and Beautiful Plants. Nepenthes, New Dracænas, New Crotons, New Pelargoniums, New Roses, Geraniums, Fuchsias, etc., with a rich collection of Fine Foliage and other **Greenhouse and Hot-House Plants,** well grown and at Low Prices. **Free to all my Customers;** to others, 10 cts.; or a plain copy free.

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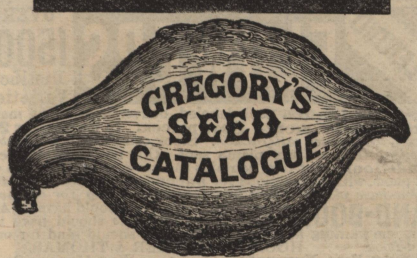
JOHN SAUL, Washington, D. C.



My **Annual Catalogue of Vegetable and Flower Seed for 1881** will be ready by January, and sent **free** to all who apply. Customers of last season need not write for it. I offer one of the largest collections of vegetable seed ever sent out by any seed-house in America, a large portion of which were grown on my six seed farms. **Printed Directions for cultivation on every parcel.** All seed sold from my establishment **warranted to be both fresh and true to name;** so far that should it prove otherwise, I will refill the order gratis. As the original introducer of the Hubbard and Marblehead Squashes, the Marblehead Cabbages, and a score of other new vegetables, **I invite the patronage of all who are anxious to have their seed fresh, true, and of the very best strain. NEW VEGETABLES A SPECIALTY.**

JAMES J. H. GREGORY, Marblehead, Mass.

Disseminator of the **Mammoth Pearl** and **Magnum Bonum Potatoes** (273¼ bu. grown from 1 lb. of seed), **Berkshire Beauty Cabbage, Amber Cream Sweet Corn, La Plume Chestnut Celery,** etc., etc. **Elegant Catalogue** free to all; send for it.

SEEDS

We will send our Catalogue for

1881

Containing a full and descriptive list of

FLOWER SEEDS,
VEGETABLE SEEDS,
Gladiolus, Lilies, Roses,
Plants, etc.

beautifully illustrated with colored plates, **free** to all who send their address.

Application may be made to
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or 174 E. Randolph St. Chicago, Ill.

HIRAM SIBLEY & CO.
ROCHESTER, N.Y. & CHICAGO, ILLS

THORBURN & CARSON,

Successors to W. H. Carson,

SEEDSMEN,

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BEAUTIFUL ILLUSTRATED CATALOGUE FREE. My list of new, rare and beautiful flowers is the best in the country. New Gladiolus, Tuberoses, Amaryllis, Roses, Carnations, choice Flower and Vegetable Seeds, Seeds of House plants, &c. The greatest collection of Lilies, 100 rare kinds. All seeds except Greenhouse, are sold in FIVE CENT PAPERS; the best system ever adopted. Everything warranted true to name. See Catalogue; prices are low.

The following sent by mail postpaid. 10 Gladiolus, 10 sorts named, 50c. 9 Lilies, 9 sorts named, $1. 12 double Tuberoses, 75c. All fine sorts and flowering Bulbs. Remit currency or postage stamps. My goods have an established reputation and go to all parts of the world.

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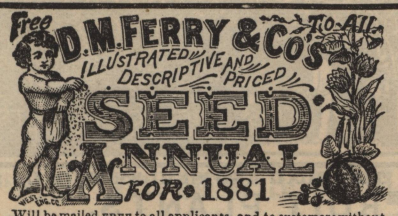

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"CHICAGO MARKET POTATO."

One of the Earliest. Excellent in Quality. Exceedingly Prolific. Leading seedsmen everywhere recommend it. Send for List. Price, peck, **$1.25;** bushel, **$3.50;** bbl., **$7.50. Seven other newest sorts.**

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TOOLS FOR FARMERS, GARDENERS, NURSERYMEN, and FLORISTS.

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SEEDS! PURE, Fresh and the Best.

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MEN WANTED, To sell Fruit and Ornamental Trees, Grapes, Shrubs, Roses, etc. No experience required. Salary and expenses paid. J. F. LECLARE, Nurseryman, **Rochester,** N. Y.

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To every farmer sending us his name, we will send free *The Clover Leaf,* a 4 page, 28 column farmers' paper, full of valuable information on the culture and harvesting of clover for seed. When you write say where you saw this notice. Address

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STRAW BASKETS AND RUSTIC WORK.

WHOLESALE DRALER IN

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Send for my Trade List.

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Choice Plants.

These collections (Strawberries excepted) packed to carry safely a thirty days' journey, if the order is sent early. I prepay mail packages; purchasers pay Express charges. At these prices no alterations can be made in the collections. Catalogue free. "Strawberry Culture" for a 1 cent stamp.

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12 Kirkwood, 12 Marvin, 12 Longfellow, 12 Warren, 12 Brilliant, 12 Glendale, 12 Sharpless, 12 Duchess, 12 C. Downing, 12 Cumberland Triumph, and 2 of the **BIDWELL.** By Mail, $4.00; by Express, $3.00.

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10 Highland Hardy, 10 Brandywine, 10 Franconia, 10 Cuthbert. By Mail, $1.50; by Express, $1.00.

A RARE OFFER.

1 Hydrangea paniculata, 1 Viburnum plicatum.
5 Roses (H. P. one year old plants), choice varieties, my selection.
4 Grapes (Prentiss, Moore's Early, Brighton, Lady).
30 Raspberries, including 10 Cuthbert, 10 Gregg.
12 Blackberries (Snyder and Kittatinny).
6 Currants (Red and White).
100 Choice Strawberries (my selection of varieties).
By Express for FIVE DOLLARS.

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PLANTS BY MAIL.

10 Choice Varieties, labeled, - - - - for $1 00
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of either COLEUS, FUCHSIA, or GERANIUM, packed by our new method, and mailed, post-paid, to any address, on receipt of 10 cents.

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Strawberry Plants	Either kind	Raspberry Plants
100 Cumberl'd Triumph	*post-paid*	25 Cuthbert (Red)
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OSAGE ORANGE 1 year. **C. C. ASPARAGUS** 1 and 2 years. **STRAWBERRIES** (Sharpless, Kirkwood, Cumberland Triumph, Crescent, French, etc.): **Raspberries** (Cuthbert, Gregg, etc.): **Currants, Blackberries, Grapes; Fruit, Shade,** and **Evergreen Trees,** and general Nursery Stock. *Extra good Plants.* Prices reasonable. Send for New Price-List.

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BIDWELL The **GENUINE HEADQUARTER STOCK.** Having secured from the originator all of his stock, and also from MR. T. T. LYON, Pres't Mich. Pom'l Society and disseminator of the BIDWELL, all the stock owned and controlled by him, I am able to supply this most promising of the new Strawberries in limited quantities. The First Premium was awarded to the BIDWELL, as the "Best New Variety and Plant," by the N. Y. Hort. Society in 1880. Also, a superb stock of the celebrated

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An exceedingly liberal offer of these two fine fruits, with my book, "Success with Small Fruits." Descriptive catalogue free. Address,

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74,000 **QUARTS of BERRIES** grown and marketed in season of 1880. I plant and sell plants from *the same genuine stock.* **I offer over 150** sorts of **Best Strawberry, Raspberry, Blackberry Plants, Currants, Grape Vines, Peach, Pear, Apple, Cherry, Plum, Quince,** and other Fruit Trees, Ornamental Trees, &c., *at Lowest Cash Prices. Descriptive Catalogue for Spring of* 1881 *free.*

All needing from a **Dozen** to **100,000** Plants, Vines, or Trees, can SAVE MONEY BY WRITING TO ME before buying of others.

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CAROLINE, like Brinkle Orange, 12 plants, $1; 100, $5; both hardy as oaks, fruit very large. 100 varieties Evergreen Trees, Japan Maples, Rhododendrons, Calmias, hardy Azaleas. 100 varieties Clematis, etc. Catalogue free.

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IS MUCH BETTER THAN ANY OTHER. Best bearer, cane, and berry. Can ship much farther, make ⅓ more dried fruit, and can fruit twice as many years. Send for circular. *Mention Paper.* **Wayne Co. Evaporated Fruit Company, Newark, N. Y.**

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Over **800** varieties. Fresh and true to name. **BEST** home-grown and imported. **5 cent** pkts. for **2½ cents; 10 cent** pkts. for **5 cents,** etc. *See my low-priced list of Verbenas, Roses,* and other plants by mail. *Catalogues free.*

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BEAUTIFUL FLOWERS

We will send postpaid, guaranteeing safe arrival in good condition, our *choice of sorts:*

60 $1 SETS: For example: 12 Roses, **$1;** 20 Verbenas, **$1;** 15 Basket or Bedding Plants, **$1;** 10 Geraniums, **$1;** 10 Tuberoses, **$1;** 6 Hardy Flowering Shrubs, **$1;** and *Hundreds* of others, **NEW AND RARE CHEAP,** and *many* For your choice of varieties, see our **72-page Catalogue,** with colored plate, **free** to all. We offer an *immense stock* of **SMALL FRUITS** Grape-Vines, Fruit and Ornamental Trees, Evergreens, etc.: 8 Currants, **$1;** 25 Raspberries, **$1;** 75 Strawberries, **$1;** 8 Grapes, **$1;** 8 Apple, **$1;** 4 Pear, **$1;** 8 Peach, **$1;** 40 Sweet Chestnut, **$1;** 100 Hardy Catalpa, **$1;** etc. Catalogue (with 11 col'd strawberries) free.

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All **Strong Plants,** each labeled, delivered safely by mail. **Largest assortment. Low prices.** In business for **27 years.** *Guarantee satisfaction.* Stock comprises *all desirable varieties.* Only mature plants sent. Our new **Illustrated Hand-Book,** sent free, contains the name and description of each plant, with instructions for **successful** cultivation. *Do not purchase plants* **elsewhere** *before sending for our new* **HAND-BOOK** Every lover of *flowers* should have it. All buyers of *cheap plants* should have it. Every one wanting *new* and *choice plants* should send for our *Hand-Book.*

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BLIGHT-PROOF PEARS.

Largest Berries.

Catalogues of Fruit Trees, Plants, and Flowers sent free.

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NEW and CHOICE ROSES, Greenhouse and Bedding Plants. The best in their classes at lowest prices. Before you buy, send stamp for illustrated catalogue to **HARKETT'S** FLORAL NURSERIES, **Dubuque, Iowa.**

HARDY PLANTS, BULBS, GRASSES, SHRUBS, CLIMBERS, Etc.

Our New Catalogue and Price-List for 1881 is now ready. It contains the largest and finest selection of the above plants, in the U. S. Many **NOVELTIES,** including many

BULBS & PLANTS

which cannot be found elsewhere. The following rare or desirable sorts are especially recommended:—

	Doz.	Each.
Chrysanthemums, 25 best sorts	$2 25	25c.
Chrysanthemum frutescens, New Fr'h Marguerite		30
Clematis coccinea, Scarlet Clematis	$5 00	50
Crawfurdia Japonica, Climbing Gentian	5 00	50
Dephinium Cashmerianum, new and fine	5 00	50
Eulalia Japonica zebrina, Zebra Grass,	2 50	25
Iris Kæmpferi, Japan Iris	2 50	25
Leontopodium alpinum, Edleweiss	5 00	50
Pæonia tenuifolia, *fl. pl.,* Sl'der-l'vd Pæony,	7 50	75

The above, together with nearly 1,000 species and varieties, will be sent prepaid by mail to any part of the U. S. on receipt of price.

WOOLSON & CO., Box **180,** Passaic, N. J.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.

Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.50 per volume.

The German Edition.—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in the German Edition. Besides these, there is a special department, edited by an eminent German cultivator. Our friends can do us a good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language, and those who employ Germans will find this Journal a most useful and acceptable present.

Bound Copies of volume 39, and of every previous volume back to Vol. XVI. (1857), neatly bound, with gilt backs, Index, etc., are supplied at $2 each (or $2.30 if to be sent by mail). See Publishers' Notes, 2d cover page.

Clubs can at any time be increased by remitting for each addition, the price paid by the original members; or a small club may be made a larger one at reduced rates, thus: One having sent 6 subscribers and $7, may afterwards send 4 names more and $3, making 10 subscribers for $10.00; and so for the various other club rates.

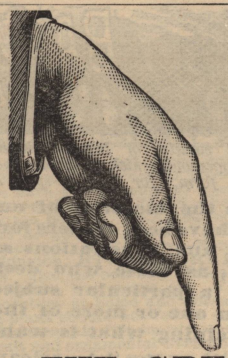
Terms to New South Wales, New Zealand, Australia, Africa, etc.—To several inquirers. Under the latest revision of the Postal Union Regulations the price of the *American Agriculturist* (either English or German edition), including postage *prepaid* through, will be covered by 7 shillings sterling per annum. This applies to the above countries, and to all others embraced in the General Postal Union. The simplest mode of remittance is by Postal Money Orders, payable in London, to the order of Orange Judd Company. These can be readily cashed in N. Y. City at a slight discount, which the publishers will cheerfully pay. For Club rates (postage included), see our second cover page, and reckon 22 cents to the shilling sterling.

Fairs for 1881.—The first official notice of a State Fair for 1881 comes from Delaware and reads: "The 4th Annual Fair of the Agricultural Society of the State of Delaware will be held at Dover, Sept. 26 to Oct. 1, 1881. Respectfully D. P. Barnard, Jr., Secretary." We hope that this may be followed by notices of the other Fairs, State, etc., so soon as the dates and places have been decided upon. The earlier our list can be made up the more serviceable it will be to the many who seek information about Fairs, Exhibitions, etc. We ask the Secretaries of the various Associations and Societies—Agricultural, Mechanical, Horticultural, etc.—to send us notice as early as practicable.

Coal Tar for Corn.—"J. H. F.," Frederick Co., Va., has used gas tar or coal tar on corn to keep crows from pulling it. He rolls the corn in the tar, using about one gill to the bushel, or just enough to blacken it. After stirring well together, dry the surface, to facilitate in dropping, by using lime, plaster, ashes, or some sifted dry earth. For eight years Mr. F. has not had his corn, thus prepared, disturbed by the crows, while that of his neighbor's, just over the fence, planted with no such preparation of coal tar, has been badly pulled.

Spring Rye.—"A. B. L.," North Egremont, Mass., inquires: "When is the time for sowing Spring Rye?"—It should be sown as early as the ground will permit—the earlier the better provided it is sown with the soil in proper condition to receive the seed.

Taking Sheep South.—"P. L.," Chittenden Co., Vermont, writes: "I would like to know if northern sheep can be taken South with safety? Is there any risk in acclimating them? What season of the year is the best to take them South, and at what age?"—There is no trouble in taking Northern Sheep into the Southern States. All things considered, diet, etc., it is best and most convenient to remove them to the South in autumn.



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CONTINUED

One Month More.

The confusion of moving the whole establishment, disturbed and interrupted the printers, and delayed the mailing long after the usual time. So also the unprecedented storms and heavy snows greatly delayed the mails over a large part of our country. (We have letters from Northern States and territory that have been 20 to 35 days coming!)

As these delays shut out a large number of our readers, the Publishers have arranged to *extend the time* of giving the Special Premiums, **No. 1** and **No. 2**, offered last month, thus: Instead of from March 1st to April 1st, the offers are now extended from **March 1st to May 1st.**

All other conditions remain precisely the same as last month (*page 120.*)

The Book offered will be highly valued by every one, and there is scarcely a doubt that the new Pea will prove very desirable.

Until Next June.

The *General* Premiums offered for 1881 remain open until next June. Premium Lists of Subscribers already in progress can be increased from time to time, and new lists be started.—**APRIL** is a good month for continuing the canvass. Many thousands of subscribers were added to these lists during April of last year, and owing to the better condition of the country the number may be largely increased *now.* (See page 37, January *Agriculturist*).

☞The 32 page Illustrated Premium List, describing all the Premiums, will be sent free to any one not having it, on application by Postal Card.

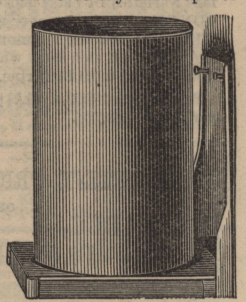
☞ **The Special Premiums** named above, are a separate matter. Of course names sent for the Special Premiums can not be counted in any other list for the General Premiums.

Bee Notes for April.

BY L. C. ROOT.

The "Notes" for February have been copied by the different Bee journals, and in some cases severely criticised, many taking strong ground against my preference for in-door wintering. One acknowledges that bees may be wintered safely in-doors during extreme cold weather, such as we have had during the past winter, but claims that the reverse is the result during mild winters. I have wintered large numbers of swarms, both in and out of doors, for many years, during which period the winters have varied widely, and I can say I know that for climates like that of Central New York the advantages of in-door wintering are so marked, that there is no room in actual practice for doubting them. I think the advantages in warmer winters are quite as marked as in the severe ones. I have often advised those who were so much opposed to the long confinement of bees, to leave their swarms out of doors until they had made their usual January or February flight, and then place them in winter quarters until the first of May. There is more to be gained by having bees in a properly arranged wintering room during the changable weather of March and April, than during the early winter months. At the late North Eastern Beekeepers' Convention many advocated wintering bees under the snow. The objection to this practice is, that the temperature is liable to become too high, and breeding be induced. The advice given by so many, to stimulate breeding during early spring, indicates a lack of practical experience. If I am successful in keeping my bees quiet, and in preventing breeding until May 1st, when breeding may be continued without interruption, I count it a great gain. Far too many swarms of bees are each year disturbed and stimulated to death during early spring. Many of my friends are reporting bees in fine condition at this date (March 3rd), saying they have a good quantity of brood. I regard this a disadvantage at this season. I consider it a good indication to hear a beekeeper say during March and April that he knows little of the condition of his bees, except that they went into winter quarters in good condition, and have been left entirely undisturbed. Many an indolent beekeeper is successful in wintering, by neglecting his bees, or in other words, by failing to disturb them, in giving them what many prescribe as proper care. My advice, often repeated, is: to let the bees be quiet during winter and early spring, and spend the time in earnest study of the best methods for future adoption, and in the preparation of necessary hives and fixtures for use the coming season.

FEEDING.—In addition to the remarks on feeding in February "Notes," I desire to say that reports are coming in from many as to the large amounts of honey which bees have consumed during the extreme cold weather. This indicates the necessity of examining stocks, when the weather will admit, to prevent starvation. The Van Deusen Feeder was illustrated in February Notes as one that would be found convenient for feeding liquid food. As many will desire to feed at the sides of the combs, or at the entrance, we have added to this a bracket (shown in the engraving), upon which it may be placed, so that it may be used as a top, side, or entrance feeder.



VAN DEUSEN FEEDER ON BRACKET.

Houses for Two Families.—A subscriber at Marblehead, Mass., says he has not seen among our plans any houses for two families. He says that two-story houses, each story to be occupied by a family are quite common in his locality, and thinks that a few plans of such would be acceptable to those of small means who need very cheap houses. We hold that one house can not be large enough for two families, and that such buildings are only tolerable in crowded cities, where they are a matter of necessity. In families whose means make it necessary to live in such houses the wife usually does all the work. To make her do it on the second floor, where there is a constant lifting, is to add needlessly to her labors. Besides, there is a lack of privacy, the risk of giving children undesirable associates and other moral reasons why, in this country of cheap land, every family should have a roof to itself.

Population of the United States.

States,	Population, 1880.	Population, 1870.	Increase.	Rank. 1880.	Rank. 1870.
Alabama	1,262,344	996,992	265,352	17	16
Arkansas	802,564	484,471	318,093	25	26
California	864,686	560,247	304,439	24	24
Connecticut	622,683	537,454	85,229	28	25
Delaware	146,654	125,015	21,639	38	35
Florida	266,566	187,748	78,718	34	33
Georgia	1,538,983	1,184,109	354,974	13	12
Illinois	3,078,636	2,539,891	438,745	4	4
Indiana	1,978,838	1,680,637	298,221	6	6
Iowa	1,624,463	1,194,020	430,443	10	11
Kansas	995,335	364,399	630,936	21	29
Kentucky	1,648,599	1,321,011	327,588	8	8
Louisiana	940,263	726,915	214,348	22	21
Maine	648,945	626,915	22,030	27	23
Maryland	935,139	780,894	154,245	23	20
Massachusetts	1,783,086	1,457,351	325,735	7	7
Michigan	1,634,096	1,184,059	250,037	9	13
Minnesota	780,807	439,706	341,101	26	27
Mississippi	1,131,899	827,922	303,977	18	18
Missouri	2,169,091	1,721,295	437,796	5	5
Nebraska	452,432	122,993	329,439	30	36
Nevada	62,265	42,491	19,774	43	40
New Hampshire	347,784	318,300	29,484	31	31
New Jersey	1,130,892	906,096	224,796	19	17
New York	5,083,173	4,382,759	700,414	1	1
North Carolina	1,400,000	1,071,361	328,639	15	14
Ohio	3,197,794	2,665,260	532,534	3	3
Oregon	174,767	90,923	83,844	37	38
Pennsylvania	4,282,738	3,521,951	760,787	2	2
Rhode Island	276,528	217,353	69,175	33	32
South Carolina	995,706	705,606	290,100	20	22
Tennessee	1,542,463	1,258,520	283,943	12	9
Texas	1,597,508	818,579	778,929	11	19
Vermont	332,286	330,551	1,735	32	30
Virginia	1,512,203	1,225,163	287,043	14	10
West Virginia	618,193	442,014	176,179	29	28
Wisconsin	1,415,386	1,054,670	260,716	16	15
Territories.					
Arizona	40,441	9,658	30,783	44	46
Dakota	134,002	14,181	119,821	40	45
Dist'ct of Columbia	177,638	131,700	45,938		
Idaho	32,611	14,999	17,612	46	44
Montana	39,157	20,595	18,562	45	43
New Mexico	118,430	91,874	26,556	41	37
Utah	143,907	86,786	57,121	39	39
Washington	75,120	23,995	51,125	42	42
Wyoming	20,788	9,118	11,670	47	47
Total	50,152,559	38,558,371			

What a Texan says.—A friend in Ellis Co. writes: "If I am better situated and live better than my neighbors, as they say I do, it is all due to the *American Agriculturist*.... It would take one with a loose tongue to make a cotton farmer believe he could live better, cheaper, and with less labor by raising his own bread, meat, and vegetables. He will acknowledge the fact, but won't take the paper. Cotton here is king."

Treatment of Scab.—"G. W. T.," Newcastle Co., Del., had a lamb which was last summer affected with what, to judge from the description given in January, he takes to have been the scab. The animal had pulled the wool from its sides and back, wherever it could reach, and the skin was scabby. Not knowing much about sheep ailments, the lamb had no treatment for a while, but at length at the suggestion of his wife, he completely saturated the animal's neck and body generally with coal oil, which resulted in a complete cure. Mr. T. does not say whether he used crude oil—petroleum—or the refined oil—kerosene. We should prefer the former as likely to be less painful, and it would be quite as effective. The prime cause of the trouble is an insect, and this would be destroyed by either of the oils.

Ensilage—Whitman & Burrell's.—The firm at Little Falls, N. Y., so well known as manufacturers of dairy apparatus, are also dairymen, and on their experimental dairy-farm have erected two silos of the capacity of 200 tons of fodder-corn each. These they partly filled in September last. After allowing for every item, including full wages for their own time, their ensilage costs a few cents over $1 per ton. They began to feed on October 26, and write to their local paper a very enthusiastic account of the excellent condition of the fodder, and its feeding value. Their plans for "intensive" cultivation of fodder

corn are given, and they propose to put down their crop of rye in the silos and feed ensilage all the year round; in summer as a supplement to pasturage. They write us that their experiment is, thus far, a complete success.

Catalogues Received.

SEEDSMEN.

J. H. ANDRE, Binghams', Tioga Co., N.Y.—Potato catalogue, with many new varieties and new oats.

SAMUEL N. COX, Saint Joseph, Mo.—Besides seeds, a great variety of implements, etc.

C. W. DORR, Des Moines, Iowa.—Incorrectly printed Dows last month.

J. A. EVERETT, Watsontown, Pa.—General stock of vegetable and flower seeds, and several quite new, all in the quaintest possible cover.

EVERETT & GLEASON, No. 34 South Market St., Boston, Mass.—New firm, new store, and new seeds.

W. L. FERRIS, JR., Poughkeepsie, N. Y.—Besides seeds offers small fruits and other nursery stock.

HOVEY & Co., No. 16 South Market St., Boston, Mass. This very old establishment comes with a new catalogue and is well up with the times in new things.

PERRY & ROBINSON, Syracuse, N. Y.—Compactly and neatly arranged seed list; also implements.

PRICE & KNICKERBOCKER, Albany, N. Y.—One of the handsomest catalogues and as full, with novelties, as it is elegant.

ROBERT C. REEVES, Nos. 185-187 Water St., N. Y. City.—Farm seeds as well as vegetable and flower, implements, and fertilizers.

H. N. SMITH, So. Sudbury, Mass.—Small, neat, and select list of vegetables and flowers.

J. C. VAUGHAN, 45 La Salle St., Chicago, Ill.—Besides seeds and bulbs, a great variety of implements, etc.

NURSERYMEN AND FLORISTS.

C. E. ALLEN, Brattleboro, Vt.—A very full list of greenhouse and bedding plants, including the latest, also seeds.

P. J. BERCKMANS, Augusta, Ga., sends his list of greenhouse and ornamental plants, including many especially adapted to a southern climate.

H. H. BERGER & Co., San Francisco, Cal., and Tokio, Japan.—Japanese trees and other stock.

CHAS. BLACK & BRO., Hightstown, N. J.—Fruit and ornamental stock, with several novelties.

J. S. COLLINS, Moorestown, N. J.—Small fruits with all the novelties, also new pears and much useful information.

ELLIS BROTHERS, Keene, N. H.—Greenhouse and bedding plants, also choice seeds, and vegetable plants.

G. H. & J. H. HALE, South Glastonbury, Conn.—Small fruits, with a number of novelties, fruit trees, etc,

B. B. HANCE, Red Bank, N. J., is selling out the stock of Rumson Nurseries at reduced rates.

HOOPES, BRO. & THOMAS, Westchester, Pa.—A special catalogue of greenhouse and other flowers, remarkably full and fine.

T. S. HUBBARD, Fredonia, N. Y.—Wholesale list of grapes, including the Prentiss, and other new varieties.

SAMUEL KINSEY, Kinsey's Station, near Dayton, O.—Wholesale price list of fruit and ornamental stock.

LAPHAM & ANTHONY, Clayton, Del.—Offer the leading small fruits in Dollar collections by mail.

C. P. LINES, New Haven, Conn.—Small fruits, ornamental shrubs, climbers, etc.

J. W. MANNING, Reading, Mass.—A large illustrated, descriptive Catalogue of general nursery stock with special attention given to evergreen and other ornamental trees and shrubs.

THOMAS MEEHAN, Germantown, Pa.—Includes all departments of his varied stock, fruit and ornamental trees, evergreens, hedge plants, greenhouse, and other flowers, etc., in one catalogue.

A. C. NELLIS, Canajoharie, N. Y.—In his "Floral Instructor," unites, with a seed catalogue, much useful garden talk.

WM. B. REED, Chambersburg, Pa., makes a specialty of Roses and issues a circular describing choice varieties, with directions for culture.

JOHN SAUL, Washington, D. C.—Rather more bulky than ever, and with the best and newest. Also a separate list of Roses which have always been a specialty here.

CHAS. T. STARR, Avondale, Pa.—Greenhouse and other plants; new carnations in variety.

STORRS, HARRISON & Co., Painesville, Ohio.—Send 1, price list of fruit and ornamental trees; 2, a special catalogue of small fruits; 3, list of Dollar collections of flowers, fruits, etc., by mail; 4, illustrated catalogue of greenhouse and bedding plants, very full.

E. B. UNDERHILL, Poughkeepsie, N. Y.—Small fruits, a full list, including the most recent.

GEO. A. WRIGHT, Aledo, Ill., makes a specialty of the Dahlia and sends a very full list.

E. & J. C. WILLIAMS, Montclair, N. J.—Small fruits with several new kinds, fruit and ornamental trees, and select flowering shrubs.

A. WHITCOMB, Lawrence, Kans.—A very neat descriptive list of a choice selection of bedding and other plants.

IMPLEMENTS, FERTILIZERS, MACHINES, LIVE STOCK, AND MISCELLANEOUS.

M. C. ALDRICH, Felts' Mills, N. Y.—First class poultry and eggs of same.

E. F. BROCKWAY, Ainsworth, Iowa.—Poland China Swine, with "Brazilian Artichokes" to feed them.

THOS. COOK & SON, London and New York.—Catalogue of the various excursions to Europe for the coming season.

ALEX. G. CUMMINS, Smyrna, Del.—"Maize-Oleine," and "Marrow-Bone," fertilizers for corn and wheat.

DEANE STEAM PUMP Co., 92-94 Liberty St., N. Y. City.—"Steam Pumps for every possible Duty."

E. F. EDGECOMB, Mechanics' Falls, Me.—Suspension rods and chains for flower pots.

EDWIN FERRIS & Co., 183-185 Washington St., N. Y. City.—Ferris' "Land Invigorator," and salt for agricultural uses.

GEO. B. FORRESTER, 189 Pearl St., N. Y. City.—Forrester's Complete Manures, Top-dressing for Lawns, and House-plant Fertilizer.

GRAHAM, EMLEN & PASSMORE, 631 Market St., Philadelphia.—Lawn Mower. The parts of every pattern of hand and horse mower are here figured and prices attached. Most complete and useful.

H. B. GRIFFING, No. 70 Cortlandt St., N. Y. City. An illustrated (28th annual) catalogue of a vast collection of implements and machinery for the farm and farm-house.

F. M. HUNT & Co., Changrin Falls, Ohio.—Catalogue of canvas-boats for sportsmen, etc.

H. W. JOHNS' M'F'G. Co., 87 Maiden Lane, N. Y. City.—Sample cards of a great variety of tints, some quite new, of the "Liquid Asbestos Paints."

LADD TOBACCO Co., St. Louis, Mo.—A treatise on Scab and the Sheep Dip made by the Co.

J. C. MELCHER, Blackjack Springs, Tex.—Apparatus for destroying ants, gophers, etc., by forcing sulphur fumes into their burrows.

CHAS. F. MUTH, Cincinnati, O.—Bee-keeper's supplies and "Practical Hints to Bee-keepers."

ALFRED H. NEWMAN, Chicago, Ill.—Bee-keepers supplies, including books. Illustrated.

J. E. PORTER, Ottawa, Ill., with his list of Hay-forks, Loaders, etc., sends a plan of his model barn.

H. C. RICE, Easthampton, Mass.—Calf-Weaners, illustrated.

JAMES P. ROSS, Wabash, Ind.—Catalogue of Sugar Grove Herd of Registered Jerseys.

GEO. W. SIMMONS, Newark, Del.—Bee Hives and implements pertaining to Bee culture.

VANDERBILT BROTHERS, 23 Fulton St., N. Y. City.—Catalogue of implements of all kinds, and circulars of Feed Cutter, Automatic Seed Planter, etc.

FOREIGN CATALOGUES.

JOHN A. BRUCE & Co., Hamilton, Canada.—Seeds of all kinds. Very full in farm seeds.

SUTTON & SONS, Reading, Eng.—The catalogues of this firm were noticed last month; since then we have received a Treatise on Permanent Pastures by Martin H. Sutton, one of the firm, supplemented by descriptions of the agricultural grasses, and beautifully illustrated with engravings of the grasses.

O. A. PETCAH N KECCEABPHHRA, is as near as our types will make it. A few lines in German inform us that it is the catalogue of Dr. E. Regel and J. Kesserling, of St. Petersburg, Russia. With the exception of the botanical and florist's names, all is in Russian, and illustrated with very neat cuts.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending March 11th*, 1881, and for the corresponding period last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
RECEIPTS.						
23 d's *this* m'th	481,000	1,185,000	1,526,000	77,500	277,000	1,055,000
27 d's *last* m'th	536,000	1,709,000	931,000	141,000	209,000	691,000
SALES.						
23 d. *t'sm'th*	432,000	35,435,000*	10,375,000*	175,000	154,000	4,141,000*
27 d. *l't m'th*	401,000	33,107,000*	8,735,000*	146,000	267,000	3,326,000*

* Including forward delivery.

2. *Comparison with same period at this time last year.*

	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
RECEIPTS.						
23 days 1881	481,000	1,185,000	1,526,000	77,500	277,000	1,055,000
24 days 1880	368,000	1,251,000	2,137,000	41,000	409,000	896,000
SALES.						
23 days 1881	432,000	35,435,000	10,375,000	175,000	154,000	4,141,000
24 days 1880	305,000	24,100,000	4,113,000	285,000	194,000	1,314,000

3. *Exports from New York.*

	Flour.	Wheat.	Corn.	Rye.	Oat.
Past 4 weeks	429,000	2,674,000	1,594,000	259,000	1,450

4. *Exports from New York, Jan. 1 to March 9.*

	Flour. bbls.	Wheat. bush.	Corn. bush.	Rye bush.	Barley. bush.	Oats. bush.	Peas. bush.
'81	1,096,000	6,358,000	2,541,000	386,000	——	20,700	62,000
'80	701,000	5,227,000	4,805,000	358,000	127,000	29,000	71,000
'79	563,000	6,981,000	5,793,000	712,000	37,217	38,500	101,000
'78	475,400	7,483,409	2,776,780	339,829	621,599	37,847	55,550
'77	254,958	1,576,839	2,078,553	164,389	95,457	29,338	124,827
'76	357,715	1,910,068	2,630,925	15,387	——	46,266	198,153

5. *Stock of grain in store at New York.*

	Wheat. bush.	Corn. bush.	Rye. bush.	Barley. bush.	Oats. bush.	Malt. bush.
Mar. 7, '81	1,956,600	912,950	50,350	230,900	464,700	86,900
Feb. 7, '81	3,388,300	1,633,250	127,650	235,550	334,400	92,500
Mar. 9, '80	4,441,800	256,400	173,050	456,700	186,650	131,450
Mar. 10, '79	3,029,051	1,363,672	416,078	696,625	600,750	52,853
Mar. 11, '78	1,639,371	460,454	114,200	660,145	1,090,851	275,705
Mar. 12, '77	2,646,287	1,517,208	284,607	475,671	769,451	327,659

6. *Visible Supplies of Grain in Sight:*

	Wheat. bush.	Corn. bush.	Rye. bush.	Barley. bush.	Oat. bush.
Mar. 5, 1881	25,748,700	15,444,300	768,000	3,036,700	3,427,500
Jan. 8, 1881	28,892,132	16,651,500	846,450	3,215,900	3,732,900
Mar. 7, 1880	28,034,700	15,621,200	900,000	3,687,200	2,909,700

A very stringent Money Market, early in the month, growing out of the refunding projects before Congress led to serious depression and derangement in financial and commercial interests, followed, however, toward the close by a sharp rally to renewed activity and buoyancy. Very severe weather, especially at the northwest—also operated against business. Cable advices were—at the opening—favorable, but, during the month became adverse—decidedly so, as affecting Provisions, through the prohibition of imports of meats from the United States by the French Government on the plea of guarding against the introduction to French markets of unsound or tainted stock; and through the discussions, in the same vein, and spirit, of the general subject of American hog products in Germany and Great Britain, the latter country near the close manifesting alarm and apprehension because of representations said to have been forwarded by the British Consul at Philadelphia, of the prevalence of hog cholera in Ohio, Illinois, Minnesota, etc., representations, which have been pointedly censured, as without the essential element of authenticity, or substantial foundation in fact. The demoralization of the export trade in Provisions—which had attained extraordinary proportions—led to a material break in prices of Hog Products, from which, however, there has been, within a few days, a partial recovery, on a more confident inquiry, in great part speculative. Cotton has been fairly active, chiefly in the option line, but at variable, and, toward the close, at declining prices....Wool has been recently more sought after and has shown rather more firmness...Tobacco has been less freely dealt in, but has been otherwise without important changes....Breadstuffs have shown increased animation, mainly in the speculative interest, though to a liberal extent for export, but values have fluctuated frequently—on Wheat, Corn and Oats sharply, leaving off generally stronger though irregular....Ocean freights have been quoted weaker, particularly toward the close, on increased and urgent offerings of accommodation on berth and charter contracts, and a less active demand for the leading ports of discharge in Europe.

CURRENT WHOLESALE PRICES.

	Feb. 12, 1881.	March. 10, 1881.
FLOUR—Super	$3 25 @ 4 00	$3 50 @ 4 20
" Extra Western	4 25 @ 8 25	4 30 @ 8 25
" Extra Southern	4 75 @ 7 00	4 75 @ 7 00
" Rye, Superfine	5 25 @ 5 65	5 25 @ 5 60
BUCKWHEAT FLOUR, ₱ 100 lbs	1 85 @ 2 15	1 80 @ 2 10
CORN-MEAL, ₱ bbl	2 65 @ 3 30	2 50 @ 3 10
CORN FLOUR, ₱ bbl	3 75 @ 4 10	3 85 @ 4 15
OAT-MEAL, ₱ bbl	4 50 @ 6 00	4 50 @ 6 00
WHEAT—All kinds of White	1 10 @ 1 18	1 07½@ 1 19½
" Red and Amber	1 05 @ 1 25	1 07 @ 1 27
" Spring	94 @ 1 17	96 @ 1 20
CORN—Yellow	55½@ 65	56 @ 63
" White	55½@ 59	60 @ 65
" Mixed	55½@ 58	55¾@ 58¾
OATS	43 @ 50	43 @ 48½
RYE	97 @ 1 04	98 @ 1 03
BARLEY	75 @ 1 32½	78 @ 1 30
STRAW, ₱ 100 lbs	75 @ 1 30	85 @ 1 30
HAY—Bale, ₱ 100 lbs	1 00 @ 1 30	1 05 @ 1 25
HOPS—1880, ₱ lb	15 @ 23	15 @ 23
" olds, ₱ lb	4 @ 19	4 @ 18
FEATHERS—Live Geese, ₱ lb	45 @ 53	43 @ 48
SEED—Clover, W. & St. ₱ lb	7¾@ 10	7½@ 9¾
" Timothy, ₱ bushel	2 70 @ 2 85	2 75 @ 2 85
" Flax, ₱ bushel	1 42½@ 1 45	1 45 @ 1 48
COTTON, Middling	— —	8½@ 10¼
" Low Middling	— —	11½@ 11½
TOBACCO, Kentucky, &c., ₱ lb	4½@ 15	4½@ 15
WOOL—Domestic Fleece, ₱ lb	23 @ 50	21 @ 48
" Domestic, pulled	17 @ 45	16 @ 44
TALLOW, ₱ lb	6¾@ 6¾	6¼@ 6¾
OIL-CAKE—₱ ton	29 00 @29 50	29 50 @ —
PORK—Mess, ₱ bbl	14 25 @15 50	15 12½@16 12½
" Extra Prime, ₱ bbl	11 50 @ —	11 50 @12 00
BEEF—Extra Mess	9 50 @10 00	10 25 @11 25
LARD, in trcs. & bbls, ₱ 100 lb	9 70 @10 27½	8 45 @ 9 77½
BUTTER—State, ₱ lb	18 @ 34	15 @ 34
" Western, poor to f'cy, lb	14 @ 31	13 @ 28
CHEESE	8½@ 13¾	8 @ 13¼
EGGS—Fresh, ₱ dozen	27 @ 30	23 @ 23
PEAS—Canada, in bond, ₱ b.	85 @ 87	Nominal.

Prices of Fertilizers.

Nitrate of Potash (95 per cent), per lb	7½@8½c.
Sulphate of Potash (potash 44 per cent), per lb	3½@4 c.
do. do. (potash 27½ per cent, per lb	1½@1¾c.
German Potash Salts (potash 12 to 15 p. c.), p. ton	$15.00@18.00
Muriate of Potash (potash 50 per cent), per lb	2¼@2½c.
Nitrate of Soda, per lb	4 @4½c.
Sulphate of Ammonia (25 per cent), per lb	4¾@5 c.
Dried Blood (ammonia 13 per cent), per ton	$50.00@52.00
No. 1 Peruv. Guano, Lobos, ₱ ton	46.00
do. do. guaranteed, ₱ ton, cargo M	56.00
Soluble Pacific Guano, per ton	45.00
Excelsior Fertilizer Co., Fine Ground Raw Bone	45.00
Mapes' Complete Manure (clay soils), per 1,000 lbs	26.50
do. do. do. (light soils), per 1,000 lbs	26.50
do. do. do. "A" Brand (wheat), ₱ 1,000 lbs	21.00
do. Tobacco do. do.	53.00
do. Fruit and Vine Manure, per ton	37.00
do. Pure Raw Bone, per ton	38.00
Matfield Fertilizer, No. 1	45.00
do. do. No. 2	30.00
Homestead Superphosphate, per ton	40.00
do. Tobacco Grower, per ton	60.00
Banner Raw Bone Flour, per ton	45.00
Bowker's Wheat Phosphate, per ton	40.00
do. Acid Phosphate, per ton	25.00
do. Soluble Bone, per ton	35.00
do. Grain Phosphate, per ton	40.00
do. Hill and Drill Phosphate, per ton	45.00
Stockbridge Corn manure, per ton	50.00
do. Potato manure, per ton	50.00
Stockbridge Rye Manure, per ton	45.00
do. Wheat Manure, per ton	45.00
do. Seeding Down Manure, per ton	40.00
Walton, Whann & Co.'s Raw Bone Phosphate, per ton	40.00
Gypsum, Nova Scotia, ground, per ton	8.00

Persian Insect Powder Grown in the U. S.—While in Washington, recently, we found that Prof. C. V. Riley, chief of the U. S. Entomological Commission, was sending to correspondents in different parts of the country, seeds of *Pyrethrum roseum* and *P. cinerariæfolium*, the

powdered flowers of which go to make the "Persian Insect Powder" of commerce. His experiments with this powder as an insecticide in the field have convinced him of its high value, and he believes there is no better or safer remedy for a large number of our injurious insects, and the only satisfactory one so far found for the Cabbage Worm. In the experiments of the Commission last summer it was found that one pound of the powder stirred into 120 gallons of water, and sprayed upon the plants, killed the Cotton Worm, and that even a less proportion of the powder would destroy most of them. Prof. Riley has just received 5 pounds of the seed from Moscow, through the State Department, at a cost of over $100. He has found great difficulty in obtaining this seed, as in the Caucasus, etc., these Pyrethrums are a monopoly which is so jealously guarded that every ounce of seed has to be smuggled out of the country. Prof. Riley offers to send a small quantity to such of the readers of the *American Agriculturist* who will agree to sow and cultivate it carefully, and report results to him. The plant will be likely to retain its insect-killing quality best in the cooler and mountainous parts of the country, though it may do well in any light, dry soil, in the Northern and Middle States.

Curing of Hams and Shoulders.—"G. H. M.," and others. There are two methods; one by dry salting, the other by pickling. We have used both with equally good results. For the first, place a table or platform of boards where the drip will do no harm, or so arrange cleats as to direct it into a pail. Mix one pound of brown Sugar with every four pounds of Salt; rub the hams, etc., with this daily for a week, and afterwards every two or three days for two weeks more. Brush off and smoke. For pickles there is a great variety of recipes. Salt and sugar are all that are really needed, but Saltpetre and Potash are often added. The only use of Saltpetre in pickling meats, is to preserve the red color; potash is thought to make them more tender. The following is as good as any. Put a layer of salt on the bottom of the cask, and place in the hams, sprinkling salt freely over each layer. Make a pickle in the proportion of a pound and a half of salt and half a pound of sugar to a gallon of water; boil, skim, and when cool pour it over the hams. In six weeks or two months they will be sufficiently salted, when they are to be taken out, dried, and smoked.

Potatoes Without Manure.—"A. B.," Derby, Vt., asks if potatoes can be profitably cultivated by using phosphates and other artificial fertilizers, and omitting barn-yard manure.—Some successful potato growers do not use barn-yard manure at all, as they think it propagates the rot. They prepare the land in advance by growing a crop of clover to turn under in July; upon this is sown buckwheat, and when this has made its growth it is turned under. The next spring at planting time superphosphate at the rate of 200 lbs. to the acre, is applied in the hill or drill, mixing it with the soil before planting. At the last hoeing—or just before, so that it may be mixed with the soil—a generous handful of wood ashes is applied to the hills, or in drills to each plant. Excellent crops have been raised in this manner, without manure, but the clover is an important part of the preparation, and should not be omitted.

A Bad Saving.—We are told that a man in New Hampshire had two ice-houses filled last winter. He thought he would save a couple of dollars by not taking a paper, and so did not hear of the ice famine. A man offered him $600 for all his ice, which he quickly accepted. The next week another man offered him $2,000 for it, but it was too late. He had not read the papers. The man who bought the ice sold it for $6,500. So the story runs, and it is not at all incredible. We knew a man who sold 600 bushels of wheat at 90 cents a bushel, because it was 5 cents a bushel higher than he had heard of. His neighbor sold his 500 bushels for 97½ cents, because he had heard of the rise in price; his paper saved him $37.50. We have heard of hundreds if not thousands of people swindled out of from $1 to $200 each, by the very humbugs that had been shown up in the *American Agriculturist*. Somehow they could not afford to take the paper—but did afford the loss incurred through sharpers.

Cranberry Culture.—"W. S. B.," New Brunswick. Your questions may be answered in brief by saying that a profitable cranberry culture is only possible where the bog can be drained to the depth of at least 18 inches, and can be flowed at will. You ask how often the bog must be flowed. The vines are always covered with water from the time growth ceases at the beginning of winter until spring. Besides it is necessary to flow to destroy insects, to protect the fruit from frost, etc. All these matters are clearly set forth in "Cranberry Culture," by J. J. White (sent from this office for $1.25). We would not advise any one to undertake cranberry growing without first studying this eminently practical work.

Topping the Apples.—A correspondent thoroughly familiar with the London Fruit market, writes: "Let me, through you, warn American fruit-growers that they will lose their trade to an enormous extent if they do not adopt an honest mode of packing. The Canadian apples, being *the same right through*, have, in Covent Garden market, taken the lead this year, and bring much better prices. One can hardly imagine so cute a people as yours being 'left out' in this way." It is the old story of "a few scabby sheep spoil the whole flock." Our regular shippers know better than to send anything to England that is not of the best quality and properly packed; but in this year of plethora of apples, speculators not in the trade, who never sent an apple before, and not expecting to send again, and having no reputation to make or lose, have sent out fruit at a venture—and no doubt poor fruit dishonestly packed. A few barrels of this trash are enough to bring our fruit as a whole into discredit, and regular shippers who have been for years building up a reputation, suffer.

Coating upon a Waste Pipe.—"C. P.," Clyde, Ohio, has the lead waste-pipe from a wash basin so coated upon the interior as to render it useless. Such a coating may be due to either of two causes not generally thought of. When very hard water, due to the presence of lime salts, is used to wash with, the soap is decomposed, and an insoluble "Lime Soap" is formed. Until all the lime is removed from the water in this manner, the soap will not form a lather, and washing is a discomfort. This lime soap appears as a scum which readily adheres to whatever it touches, as the hands of those who are obliged to wash in such water will bear witness. This deposit might readily gather upon the interior of the pipe in the manner complained of. In many waters, especially in cold weather, there is a growth of a low form of vegetation, which to the unaided eye appears like a transparent jelly, but which a strong microscope shows to have a minute plant within the substance. Judging from the manner in which the water from a well of ours will in a few days coat the inside of a goblet with a growth of nearly half an inch thick, the same might soon close up an ordinary pipe. The deposit is gelatinous, transparent, and stiff enough to keep its shape. It is probably a *Nostoc*, a species of which some years ago collected in the Croton Aqueduct to such an extent as to seriously interfere with the flow of the water. We mention these as two things to be looked after, when a similar difficulty occurs in water pipes. As to the first, the lime soap, if a strong acid can be applied, it may be decomposed and dissolved out; otherwise it must be removed mechanically. The other, the transparent gelatinous vegetable growth, may be killed if hot water can be used.

"The Universal Pump" was thought to be about as serviceable as a pump could be, but Mr. Blunt now makes an "Improved Universal Pump," in which the structure is still more simple. The new pump has a marked business-like look and in use is very efficient. Since ours has been set up there has been no weather in which its power as a force pump could be tested, but from its performance in other respects we have no doubt it will give a good account of itself in that.

Lengthening Life.—Anxiety that disturbs one's nervous system, and thus affects the whole physical organization, is a direct promoter of disease, and a strong obstacle to recovery from illness. On this ground alone we have always believed that any and every man having a family, or relatives, or even creditors, not well provided for in case of his decease, is morally bound to have an interest in some organization that will come to the rescue if he be taken away. A few dollars, more or less, paid into a common fund every year, secures a proportionate larger sum to be promptly returned to those in the association who are first stricken down. Such an Association, of the best kind, is the N. Y. Life Insurance Company, whose statement appears on page 163. This company is practically a Mutual Association of 48,542 persons, have a fund of over Forty Million Dollars ($43,183,934.81) on interest, and also increasing by their annual contributions. As one after another dies their heirs draw out their share. According to the well-established death rate, the above fund leaves a surplus of $9,000,000 over the actual amount needed to return to each insured person the amount expended by him. We advise all interested to write to the Company and get full particulars on these matters, which are furnished free.

The Horse Essays.—We fully expected to announce the awards of prizes in this paper, but the unlooked for absence of one of the judges, makes it impracticable. The reading of such an immense mass of manuscript is not a task to be disposed of in a few hours, or even days. It is our wish to make the awards and close up the matter at the earliest practicable time, and hope that nothing may cause further delay.

Reliable Business Men, those who have both the *ability* and the *intention* to do what they promise, are the *only* ones invited to use the business-pages of this journal, and those in charge of that department are under positive instructions to admit no others at any price; and they try to live up to it, and generally do, though once in a while they may make a mistake—to err is human—but *this* seldom occurs. We could make a fortune in a single year, and supply the paper at lower rates, if the advertising pages were thrown open to those who gladly pay high prices, as they can afford to, because they give little for much. But we mean our advertising pages shall be a valuable source of *trustworthy information* to our readers.—When ordering from, or corresponding with any of our advertisers, or sending for catalogues, etc., it is well to state that you are a reader of this Journal. They will know what we expect, and what you expect of them as to prompt and fair treatment.

The Liquid Asbestos Paints.—We have already given a favorable report upon these paints, and a year's additional wear confirms the opinion formerly expressed. To meet the demand caused by new styles in decoration, the H. W. Johns' Co. have brought out a variety of "fashionable" shades which will allow every style of outside and inside decoration to be done with these, that is possible with common paints.

The "American Agriculturist" Premium List.—If any one of our readers has not yet received our fully illustrated Premium List, or if any one desires the List for a friend, we will send a copy free, on receipt of the address.

Worms for Chickens.—"A. L. W.," Kittery, Me. "Is there any such a thing as generating worms for chickens, and if so how is it done?"—Mr. A. doubtless means the growing or propagation of the common earth worms. We have not learned that this has been done, and should be pleased to hear of any information on this question. We have observed that Angle Worms are more abundant in rich and moist soil than elsewhere, as everybody who "goes a fishing" soon learns.

Poisoning Moles.—R. Forseman, Pickaway Co., Ohio, writes that, having to re-plant a 16-acre field with corn three times in succession on account of the moles, he tried poisoning them. He mixed arsenic with a pint of shelled corn, covering it with warm water, and let it stand over night. He then put about a dozen grains in each mole-run, opening the run and covering it with a clod. He found the remedy most effective. In giving the quantity of arsenic, he said that he used ten cents' worth. This may be an ounce, or might be half a pound, as the deadly stuff is a waste product, and very cheap. It is not very soluble in water, and half an ounce treated as described for a pint of corn would be an abundance.

Growing Forest Seeds and Making Plantations.

Many persons contemplate the planting of 10 acres of forest trees to secure a title to 160 acres of land, in compliance with the provisions of the Congressional Timber Culture Act. There are, practically, but two methods of making such plantings—planting with tree-seeds and planting with tree-seedlings. Either plan involves the preparation of the prairie soil, which is usually broken in the month of June, to the depth of 1½ to 4 inches, and plowed again 3 or 4 inches deeper, a few months later, and afterwards sown to some crop. This working of the soil, and the action of the elements, causes the decay and pulverizing of the sod, and fits the soil for the reception and growth of tree-seeds and tree-seedlings. The Timber Act fixes the distance of the trees at 4 by 4 feet, thus requiring 2,722 trees per acre, or an aggregate of 27,220 for the 10 acres. If the method of planting with seeds is adopted, the cost will vary according to the kind of seeds, and will require, with most of them, at least 4 years cultivation; or, if trees instead of seeds are planted, 3 years cultivation, before they will attain a size sufficient to shade the ground to prevent the growth of weeds.

The vitality of many kinds of tree-seeds is short-lived, and unless properly handled and planted before their vitality becomes impaired, they may fail to germinate, or the plants may make only a feeble and unsatisfactory growth. Some tree-seeds do not germinate until the lapse of months after planting. After the seeds have germinated, careful cultivation is essential; any neglect in this respect will result in a growth of weeds, which will exclude the sun-light and the circulation of the air, causing a partial or entire loss of the young seedling-trees. The first season's growth of many kinds of tree-seedlings is very small, Evergreens and European Larch attaining a hight of 1 to 5 inches; the Ashes, Hickory, Beech, Sugar and Red Maple, Cherry, Chestnut, and Linden, 4 to 12 inches; Black Walnut, Catalpa, Butternut, Black and Honey Locust, 12 to 36 inches; the rate of growth being dependent upon conditions of climate, soil, culture, and the habits of the species. Evergreens and European Larch require shade for one or two years after planting, which renders it impracticable to grow the trees from seed in ordinary open field culture. All the other species mentioned may be planted in permanent forest. Owing to the slow germination and growth of some kinds of trees, during the first season, weeds will make their appearance in advance of the trees, and be troublesome and expensive to remove by the slow and tedious method of hand-weeding. The more rapid growers would not require, perhaps, to exceed two hand-weedings; the cultivation between the rows, each way, being done by horse-power. Aside from the difference in the cost of seeds, these kinds of trees may be grown from seed sown in permanent forest. Owing to the existence of different conditions of climate, soil, and culture of seeds, etc., the cost per acre of planting with seed, and the first year's cultivation, can only be approximately estimated. It may be assumed, however, that the cost of such species as will most readily germinate, under the care of the average planter, and such as can be grown in field culture, consisting, in part, of the above-mentioned kinds, will not exceed the following estimates:

COST OF SEEDS FOR 10 ACRES.

Catalpa, Honey Locust, and some of the Oaks can be substituted, in part, at about the same cost of plants, depending upon the quantity of seed planted.

5 lbs. White Ash, $1 00,	$5 00
5 " Box Elder, 80,	4 00
5 " Black Cherry, 80,	4 00
2 " " Locust, 1 00,	2 00
3 bushels Black Walnut, $3 00,	9 00
2 " Hickory Nuts, 3 00,	6 00
1 " Soft Maple, or 2 " Butter-Nuts,	3 00
Packing and freight charges,	4 50
Total,	$37 50

Cost of first year's cultivation of 10 acres, planted with tree seeds, would be as follows:

Planting—10 days, at $1.50 per day,	$15 00
Cultivation, $3 00 per acre,	30 00
Hand-weeding 3 times, 3 days each time per acre, total 90 days, $1 50 per day,	135 00
Total	$180 00
Grand total cost	$217 50

By the adoption of the plan of growing the seed in drills, 4 to 6 inches wide, and the drills 2 feet apart, occupying an area of half an acre, for the period of one year, and then transplanting into permanent forest, the cost might be much less.

This plan requires the seeding to be done at least one year before the trees are required for planting in forests, in compliance with the provisions of the Timber Culture Act. A valuable wooded plantation may often be made at a lower figure than is usually supposed, and prove a source of great profit to the planter. H. M. T.

[We fear our contributor's large figures will frighten many people who ought to be growing trees. To expend $217.50 the first year, is equivalent to paying down $1.36 per acre for the 160 acres to be secured, to say nothing of the following year's care of the trees. In our editorial notes at the West, last year, page 459, we described the simple mode of setting slips of Willow, Lombardy, Poplar, and Cottonwood, on fresh broken prairies, which can be done at small expense of money or labor.—ED.]

Mines and Mining.—"C. F. P.," Lawrence, Mass.—It is safe to assume that no mine so valuable as the one described in the circular sent you, need go outside of New York City for stock-takers. Whenever such schemes are sent over the country, promiscuously, they are very good schemes to—let alone.

J. Linden's Horticultural Establishment

For the Introduction of New and Rare Plants.

GHENT, BELGIUM. **Agency and Depot, 5 Rue la Paix, Paris.**

☞ The great success which has attended **J. LINDEN'S** exportations to America, has led to an immense increase in this department of business and has induced him to publish an **AMERICAN EDITION** of his **ILLUSTRATED CATALOGUE,** especially for American amateurs and nurserymen.

J. LINDEN—successful competitor at the **GRAND NATIONAL EXHIBITION** of Brussels, July 1880, taking the "Grand prix unique d'exellence and le seul diplome d'honneur pour les introductions de l'etablissement," and of the principal international Exhibitions of Europe: Brussels, 1864—Amsterdam, 1865—London, first prize for the best new plants, 1866—Paris, 1867—St. Petersburgh and Hamburgh, 1869—Ghent and Vienna, 1873—Florence, 1874—Cologne, 1875—Brussels, 1876—Paris, 1878, out of competition as President of Jury, etc.—The establishment is fully prepared to execute orders to any extent; and purchasers may be assured that all orders will be packed in the best possible manner, and despatched by the most direct routes to any part of the U. S. of America.

The **BELGIAN PLANTS** are well known to be the BEST in cultivation, and to be **CHEAPER** than elsewhere

The **SPECIALTIES** of **J. LINDEN'S** Establishment, the houses of which present nearly 100,000 square feet of glass, are noted for the following:

Plants of new and recent introduction: Orchids—Palms—Ferns—Cycads—Bromeliads—Variegated-leaved Plants—Crotons—Dracænas—Caladiums—Flowering Plants—Medicinal Plants—Tropical Fruit Trees—Camellias—Azalea Indica and A. Mollis—Rhododendrons—Roses—Decorative Plants of all kinds, &c., &c. **SPECIMENS FOR EXHIBITION** and for **FURNISHING** Conservatories, or Houses and Greenhouses of any description.

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The Excelsior
LAWN MOWER,

For Hand and Horse.

Croquet Mower, $11.00.

Hand Mowers, 3 Patterns, 10 to 20 in. Cut.

Horse Mowers, 25 to 40 inch Cut.

Our MOWERS are LIGHT, SIMPLE, and DURABLE.

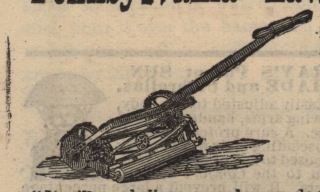
All Our Mowers are Guaranteed.
We Make no Second-Quality Mowers.

Send for Illustrated Circular and Price List.

CHADBORN & COLDWELL MFG. CO., Newburgh, N.Y.

1881.

Pennsylvania Lawn Mower,



Surpassing all others and pronounced **the best,** lightest, runs more easily, cuts longer grass, is more durable, requires less repair, cuts grass more smoothly, is less liable to obstruction, is of handsome appearance.

Penn. State Agricultural Society says: "It will, we believe, wear longer, do the work better, with less labor than any other Mower. One of the peculiarities is that it will cut higher grass than any other Mower."

Send for Illustrated Catalogue. Every machine warranted. Address,

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Evergreens,
Forest Trees,
Very Large Stock,
All NURSERY-GROWN,
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300,000 TREES FRUIT & ORNAMENTAL *GRAPE VINES, Small Fruits, PLANTS, etc.*

50,000 Peach Trees and an extra large stock of **Evergreen Hedge Plants** *at lowest market rates.* Catalogue and Price-List free to all who send for it.

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STRAWBERRY PLANTS A SPECIALTY.

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PEACH TREES. Best Orchard Varieties. Also general Stock of **Fruit** and **Ornamental Trees, Shrubs, Vines,** etc. Send for Price-List.

New Brunswick (Nurseries), N.J. **EDWIN ALLEN.**

Cuthbert Rasp Berry

E. P. ROE has one of the largest and finest stocks in the country of this unequalled market Raspberry. The wide and varied test of the past season proves it to be the **finest,** largest, and one of the hardiest, bright red raspberries before the public. A third larger and twice as productive as the Brandywine, and so remarkably firm that it can be shipped by rail to market. It has yielded at the rate of $800 per acre. Descriptive Catalogue free. Address

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10 Nice **CONCORD Grape Vines** by Mail for $1.

Don't Delay in Ordering for Spring Planting. Send for Circular. **WM. B. REED,** Chambersburg Nurseries, Chambersburg, Pa.

GRAPES PLANTS of **Best Quality.** Warranted true to name. **Lowest Prices,** and **Largest** Assortment of old and new varieties. At dozen rates, **free by mail. Special Attention** called to **Promising Novelties.** *Send for Price-List.* Address, **BUSH & SON & MEISSNER,** BUSHBERG, Jefferson Co., Mo.

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SWEET CORN FOR FODDER, Etc., Etc.

OUR CATALOGUE, with description of above, with full lists of **CHOICE VEGETABLE** and **FLOWER SEEDS** mailed on receipt of stamp for postage.

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75 Bbls. MAMMOTH PEARL POTATOES for Sale at $3.50 per bbl.; will give 2 lbs. of St. Patrick Potatoes with each bbl. The best of 20 varieties grown by me last summer. Address, JOSIAH HAWKINS, Southport, Conn.

RUSSIAN WHITE OATS.

These Oats have been **tried in every State in the Union** with the same success. **Every kernel filled, straw firm, free from rust;** with ordinary cultivation **yield 100 bushels to the acre, endure the coldest climate.** J. P. THOMPSON, La Fontaine, Ind., writes: "From the pound of Oats, planted May 10th, have raised enough to plant 2 acres; they were free from rust, while others rusted right by their side."

EVERY ONE THAT HAS TRIED THEM SAY THEY ARE THE COMING OAT.

PRICE:

1 Pound, post-paid		**$0 50**
3 "		**1 00**
½ Bushel, delivered to Ex. Co. or on Cars		**1 40**
1 " " " "		**2 25**
10 " or more " " " "	per bush.	**2 00**

JAMES VICK, Rochester, N. Y.

NORTH STAR SEED FARMS, 1881.

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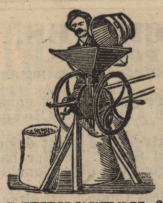

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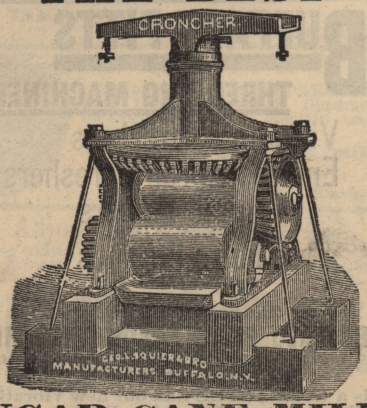

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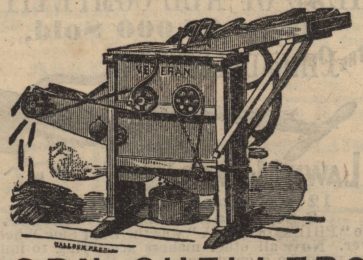

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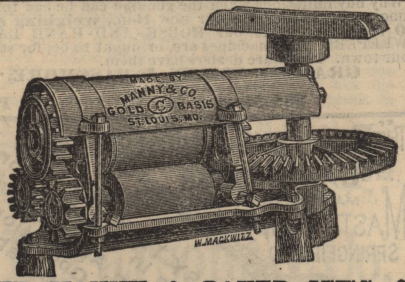

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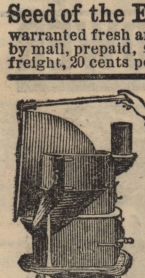

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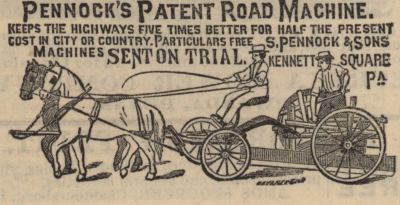

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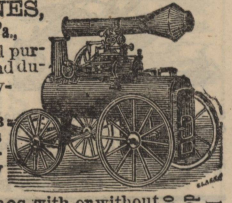

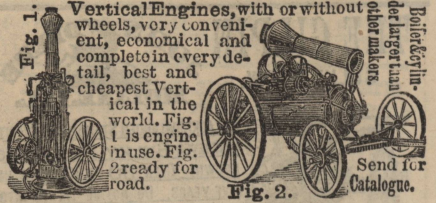

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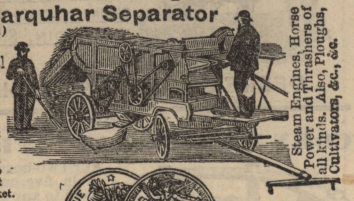

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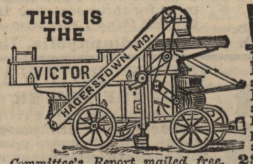

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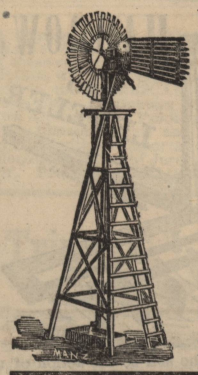

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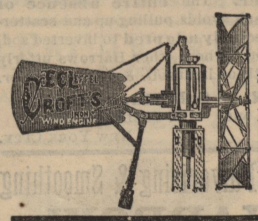
IRON WIND ENGINE,



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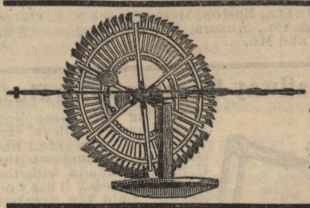

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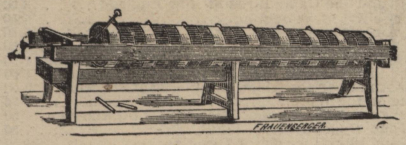

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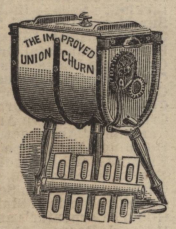

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Send for description of this famous breed and fowls. State if member of grange.
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Five sizes made for Family Dairies. Four sizes for Factory use. They continue to be the Standard Churns of the Country. Send for a Churn or a Descriptive Circular to the SOLE MANUFACTURERS,
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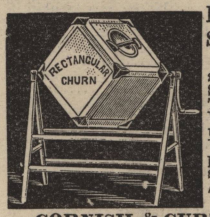

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BUTTER made by this Process awarded **Sweepstakes** at International DAIRY FAIR, 1878, and **Gold Medal** and **First Premium** at same Fair, 1879. **First Premium** at Royal Agricultural Exhibition, London, 1879.

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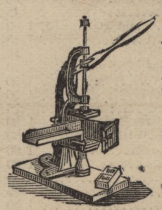

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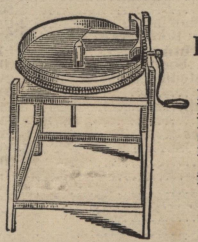

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For ease and thorough work **it is absolutely unequaled.** Circulars free.
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Gets all the Cream in less than ten hours with ordinary well or running water, or in two hours with ice water, with less than half the ice called for by any other process.

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